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TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1929

No. 122

FEDERAL RADIO COMMISSION, PETITIONER

vs.

GENERAL ELECTRIC COMPANY AND PEOPLE OF THE STATE OF NEW YORK

ON WRIT OF CERTIORARI TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

PETITION FOR CERTIORARI FILED JUNE 1, 1929
CERTIORARI GRANTED OCTOBER 14, 1929

(34253)

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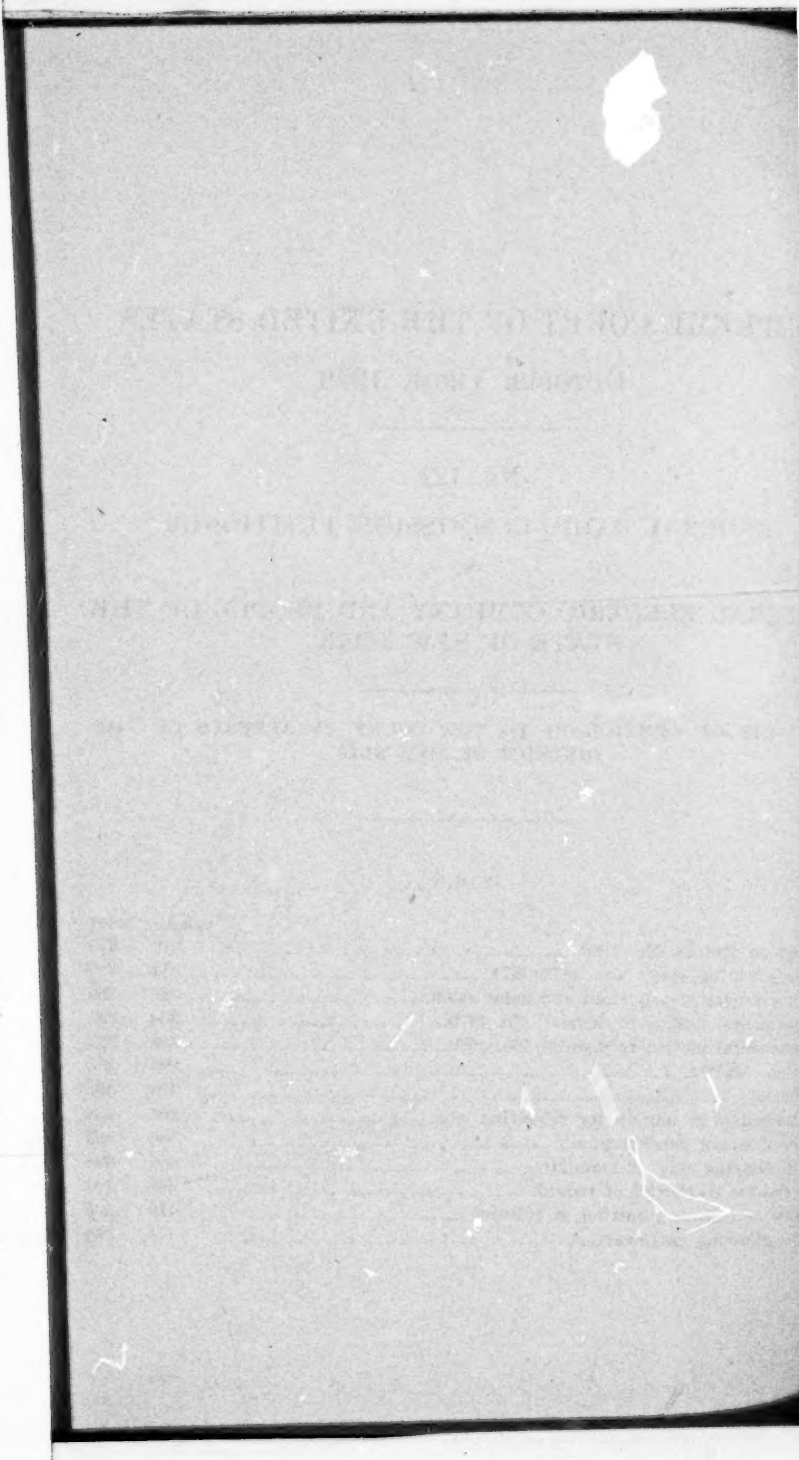

Court of Appeals of the District of Columbia

OCTOBER TERM, 1928

No. 4870.

GENERAL ELECTRIC COMPANY, APPELLANT,

vs.

FEDERAL RADIO COMMISSION.

AND

No. 4871.

THE PEOPLE OF THE STATE OF NEW YORK, APPELLANTS,

vs.

FEDERAL RADIO COMMISSION.

AND

No. 4880.

GENERAL ELECTRIC COMPANY, APPELLANT,

vs.

FEDERAL RADIO COMMISSION.

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Court of Appeals of the District of Columbia

No. 4870.

General Electric Co., Appellant,

vs.

Federal Radio Commission.

and

No. 4871.

The People of the State of New York, Appellants,

vs.

Federal Radio Commission.

and

No. 4880.

General Electric Co., Appellant,

vs.

Federal Radio Commission.

1-11 In the Court of Appeals, District of Columbia

Nos. 4870-4880.

General Electric Company, Operating Station W G Y, Appellant,

vs.

Federal Radio Commission, Appellee.

Designation and Stipulation of Record.

12 In the Court of Appeals of the District of Columbia.

No. 4870. Radio Commission No. —.

General Electric Company, Applicant-Appellant,

v.

Federal Radio Commission.

Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor.

Now comes the General Electric Company, applicant-appellant in the above-entitled proceeding, and says that it is

aggrieved by the decision of the Federal Radio Commission rendered herein against it on October 17, 1928, effective October 17, 1928, and gives notice of its appeal therefrom to the Court of Appeals of the District of Columbia, and assigns in support thereof the reasons for appeal hereinafter set forth.

Reasons for Appeal

The reason for this appeal is because the Federal Radio Commission has threatened to deprive the General Electric Company of its property right to use broadcasting facilities of station WGY in full time operation on a frequency of 790 kilocycles, or any frequency substantially equivalent.

The Commission has decided that WGY shall cease to operate on November 11, 1928, at 3 A. M., Eastern Standard time, as a full time station on 790 kilocycle frequency or any equivalent frequency, thereby depriving a community of approximately 2,400,000 people of any satisfactory program radio service.

The Commission has failed to serve "public interest, convenience, or necessity" in refusing to authorize continuance of the public service heretofore rendered by WGY; has failed to afford the General Electric Company an opportunity to be heard under reasonable rules and regulations with respect to its applications for continuance of broadcasting service; and has otherwise failed to comply with the provisions of the Radio Act of February 23, 1927.

The facts and proceedings which caused this appeal appear from the following, to wit:

13 1. The General Electric Company is the owner and operator of the radio broadcasting station, known as WGY, and located in the City of Schenectady, State of New York, and has owned and operated this station since February 20, 1922. Since May 21, 1923, WGY has been regularly operating under licenses issued by the Department of Commerce, and by the Federal Radio Commission, which Commission was created by the Radio Act of 1927, approved February 23, 1927. Of more than 600 broadcast stations in the United States, only nine other stations have as long a service record as WGY. Its priority rights, based on long and excellent service, are very great.

WGY is one of the most important development stations in the world. Through its assistance, apparatus has been developed, which is now adopted by the leading broadcasting stations everywhere, and the Department of Commerce has recognized the technical achievements of WGY, by designating it as one of a special class of stations, known as Development Broadcasting Stations, of which there were only three. Among the major improvements developed are the following: higher powered transmitters, larger vacuum tubes, condenser microphones, accurate maintenance of assigned frequency, and short wave experimental broadcasting.

In the construction and operation of WGY, to develop the radio art, especially the broadcasting art, and to furnish to the public broadcasting of the highest quality, the General Electric Company has provided apparatus, equipment and instruments of the highest quality, and has invested more than one and a half million dollars. The General Electric Company has a very valuable property right, created by the broadcasting service originated and carried on by WGY since February 20, 1922.

2. Within 100 miles of WGY, there is a population of approximately 2,400,000, including residents in Albany, Troy, Amsterdam, Utica, Poughkeepsie, Hudson, Saratoga, Rome, Kingston and Glen Falls in New York State, Pittsfield and Adams in Massachusetts, Rockland in Vermont, and many towns, villages and farms in the States of New York, Massachusetts, Vermont and New Hampshire. There are many institutions within this area, devoted to the welfare of the afflicted and poor, such as Disabled Veterans' 14 Hospital at Tupper Lake, N. Y., Albany Hospital for Incurables, Home for Aged at Schenectady, N. Y., The Catskill, Adirondack and Lake George regions containing many hospitals, sanitariums, camps and convalescent homes, because of the characteristics of this region.

This community is dependent, and has been since 1922, upon WGY for its only reliable and regular broadcast service. Broadcasting stations in New York City, Boston, Springfield and Rochester do not deliver good program service to this community, because of their distance from this community, and also because of fading, static interference and local conditions. WGY is the only broadcasting

station now serving this community with reliable, high class service.

Good program service depends largely upon the distance between the listener and the broadcasting station, and the power of the broadcasting station. Reception is usually better at night than in daytime, in the broadcast band. For a high power station, of 50 kilowatt power, the service area within which listeners may receive programs without interference from electric storms and other electrical disturbances, extends from 60 to 100 miles in all directions from the broadcasting station. Stations at greater distance, or of lower power, may be and often are, received further away, but such reception is intermittent, unreliable and unsatisfactory with respect to program service.

The action of the Commission proposes to deprive WGY on November 11, 1928, of its right to continue to furnish its service to approximately 2,400,000 people, who cannot receive good program service elsewhere.

4. The Radio Act of February 23, 1927, created the Federal Radio Commission. Prior to said Act, and since May 21, 1923, WGY has been regularly operating on a 790 kilocycle frequency or channel, and has been furnishing broadcast service of the highest quality to listeners within its range, the neighboring communities in the States of New York, Massachusetts, Vermont and New Hampshire, receiving such service exclusively from WGY.

The Radio Act provides, Sec. 4, that the Commission "as public convenience, interest or necessity requires," shall classify radio stations, prescribe the nature of their services, assign bands of frequencies, powers and times of operation to the stations, determine the location of classes of stations or individual stations, etc. The Radio Act provides further, Sec. 9, as amended by Act of March 28, 1928:

"That the people of the zones established by section 2 of this Act, are entitled to equality of radio broadcasting service, both of transmission and of reception, * * *."

The Commission after its establishment set aside for broadcasting stations a band of frequencies extending from 550 kilocycles to 1,500 kilocycles.

WGY has continued to operate on its 790 kilocycle frequency under license of the Commission, said license expiring on November 11, 1928, at 3 A. M., Eastern Standard

time. This license was granted under date of November 1, 1927, copy being attached hereto as Exhibit A, and provided for full time operation on 790 kilocycle frequency. By letter of January 4, 1928, the Commission requested the General Electric Company to file application for extension, which application was filed under date of January 14, 1928, with letter of same date, copies of said letters and application being attached hereto as Exhibits B-1, 2 and 3.

Under date of August 30, 1928, by General Order No. 40, the Commission assigned the frequency of 790 kilocycles to the Fifth Radio Zone, comprising Western States,
16 and in accompanying statement declared that this frequency and 39 others were channels on which "Only one station will be permitted to operate at any time during night hours." By this Order, the frequency of 730 kilocycles was made a Fifth Zone frequency, "for full-time operation, that is to say, twenty-four hours daily and every allocation herein of a frequency to a particular zone is to be considered as carrying with it an assignment of full-time operation on that frequency to that zone." This Order and Statement are attached as Exhibit C-1.

Under date of September 11, 1928, the Commission addressed a circular letter to "All Persons Holding Licenses to Broadcast", attaching a list of broadcasting stations, including:

			Assignments.					
			Former.			New.		
"Station.	Location.	Owner.	Shared with.	Power.	Kc.	Shared with.	Power.	Kc.
WGY	S. Schenectady.	Gen. Elec. Co.	....	50,000	790	Limited	*50,000	790"

The asterisk refers to General Order No. 42, relating to power of transmitting stations.

An Addendum attached to this list stated:

"The following stations, included in the foregoing list, are to be classed as part-time stations:

Station.	Location.
WGY	Schenectady, New York.

The foregoing stations will not be permitted to operate during the evening hours simultaneously with other stations assigned to the same frequencies.

'Day' in list means daytime operation only."

This circular letter is attached as Exhibit D-1.

Under date of October 23, 1928, the Commission issued a revised list of broadcasting stations, attached Exhibit E, superseding the previous list, said list containing:

"790 kilocycles—*WGY Schenectady, New York General Electric Co., 50,000 ltd. time."

The asterisk refers to General Order No. 42, which relates to power of transmitting stations.

17 By General Order No. 48 of October 24, 1928, which refers to General Order No. 41 dated September 4, 1928, attached as Exhibits F, F-1, a "limited time" broadcasting station is permitted to operate up to the average time of sunset at the unrestricted station to the west of the limited station, or at other times at which the unrestricted station is temporarily not using the frequency, if such operation does not cause heterodyne interference. In the present case, the WGY "limited license" of October 17, 1928, provides for operation on 790 kilocycles, and station KGO at Oakland, California, has a full time, unlimited license on 790 kilocycles. The average time of sunset at Oakland corresponds to 8.01 P. M., Eastern Standard time, in November. Under present conditions of operation, there will be heterodyne interference between KGO and WGY if they operate simultaneously. The orders of the Commission require WGY to suspend operations at 8.01 P. M., or earlier, Eastern Standard time, during the month of November.

4. On October 4, 1928, the General Electric Company made application for a modification of the allocation of the Commission, copy being attached hereto as Exhibit G. On October 23, 1928, the General Electric Company made application for renewal of its license of November 1st, 1927, copies of such application and accompanying papers being attached hereto as Exhibits H-1. On October 29, 1928, the General Electric Company received a "limited license" from the Commission, dated October 17, 1928, attached as Exhibit I. On November 3, 1928, the General Electric Company filed an application for a modification of the "limited license", with letter of same date, copies thereof being attached hereto as Exhibits J-1.

The letter of November 3, 1928, respectfully requested a hearing by the Commission on the application of same date on either Wednesday or Thursday, November 7th or 8th, 1928. No reply has been received to this request.

WGY must discontinue its present broadcasting service on November 11, 1928, at 8.01 P. M., Eastern Standard time, under the existing orders of the Commission, or be subject to such penalties for violations of the Radio Act as it may lawfully provide, which, if lawful, may include "a
18 fine of not more than $500 for each and every offense," Sec. 32.

5. The Commission has discriminated unfairly against WGY and the community of approximately 2,400,000 people which it serves. The orders of the Commission have allocated four full-time frequencies, or channels to New York State. New York City broadcasting stations have been given three of these frequencies, namely, WJZ, WEAF, and WABC, the other frequency being given to station WHAM at Rochester, New York. The Commission has also licensed to operate in New York City approximately 30 other broadcasting stations, on regional and local channels so that the communities in and near New York City have been provided with a wide and excellent variety of program service.

None of the broadcasting stations allotted frequencies by the Commission, unlimited, regional or local, has ever furnished, or can now furnish, a community of approximately 2,400,000 people near Schenectady with satisfactory program service

6. The Commission has failed to provide a sufficient number of unlimited frequencies or channels. It has allocated forty such frequencies throughout the United States, eight frequencies for each of the five zones. At least fifty such frequencies should have been provided, as was recommended to the Commission by a conference of representative radio engineers, including Dr. J. H. Dellinger of the Bureau of Standards, acting chairman, in a report released by the Commission under date of April 11, 1928, recommending fifty channels of frequencies for stations operating on 5,000 to 50,000 watts power, as "the minimum that should be provided."

The Commission disregarded the report of these engineers, and provided only forty such frequencies. The Radio Act does not limit the number of such frequencies to forty

frequencies, and the Commission could have lawfully provided fifty such frequencies.

Federal Radio Commissioner O. H. Caldwell stated on November 7th, 1928, according to the New York Times of November 8th, 1928, p. 31, that:

"Some of the commissioners felt that twenty-five cleared channels for the entire country would be sufficient,
19 but the engineers called into consultation strongly advised fifty cleared waves. I agree with the engineers' recommendation that fifty stations operating on exclusive channels without interference will greatly improve broadcasting service in the United States. If we can get fifty cleared waves we can clear up the WGY part-time arrangement and give that station an exclusive channel instead of ordering it to close at sunset on the Pacific coast when KGO at Oakland goes on the air."

Because of the reasons herein set forth and appearing from the attached Exhibits, the General Electric Company has appealed from the refusal of the Federal Radio Commission to allow it to continue the exercise of its right to use broadcasting facilities of station WGY in full-time operation on a frequency of 790 kilocycles, or any frequency substantially equivalent.

GENERAL ELECTRIC COMPANY,
By STEPHEN H. PHILBIN,
Attorney.

November 9, 1928.

20 *Verification.*

DISTRICT OF COLUMBIA, *ss:*

Stephen H. Philbin, being first duly sworn, deposes and says that he is the attorney of the applicant-appellant General Electric Company; that he has read the foregoing notice of appeal and reasons therefor; that the matters and things therein set forth on personal knowledge are true, and those therein stated on information and belief he verily believes to be true.

[Seal Marie McDonald, Notary Public, District of Columbia.]

MARIE McDONALD,
Notary Public, District of Columbia.

Notice to Federal Radio Commission.

The Federal Radio Commission will please take notice that the foregoing notice of appeal and reasons therefor will be filed forthwith in the Court of Appeals of the District of Columbia, pursuant to the provisions of the Radio Act of February 23, 1927; and, further, that it will forthwith move the said Court of Appeals for an order requiring the said Federal Radio Commission to allow it to continue to operate under its existing full-time radio broadcasting license, or an equivalent license, during the pendency of its appeal.

FRANK J. HOGAN,
WILLIAM H. DONOVAN,
JOHN W. GUIDER,
Attorneys for Applicant-Appellant,
General Electric Company.

Washington, D. C., November 9, 1928.

21 *Certificate.*

Personally appeared before me Marie McDonald, a Notary Public in and for the District of Columbia, Stephen H. Philburn, who being first duly sworn deposes and says that he is one of the attorneys for the General Electric Company, applicant-appellant herein, and that the foregoing is a true copy of the notice of appeal and reasons therefor to be filed forthwith in the Court of Appeals of the District of Columbia.

STEPHEN H. PHILBIN.

Subscribed and sworn to before me this 9th day of November, 1928.

[Seal Marie McDonald, Notary Public, District of Columbia.]

MARIE McDONALD,
Notary Public, District of Columbia.

Acknowledgement of Service.

Service of a certified copy of the foregoing notice of appeal and reasons therefor is acknowledged this 9th day of November, 1928.

FEDERAL RADIO COMMISSION,
By DONALD D. HUGHES.

22 [Endorsed:] No. 4870. Radio Commission No. —. General Electric Company, Applicant-Appellant, v. Federal Radio Commission. Notice of appeal to the Court of Appeals of the District of Columbia and reasons therefor. (The clerk will please file.) Law offices of Frank J. Hogan, Colorado Building, Washington, D. C. Court of Appeals, District of Columbia. Filed Nov. 9, 1928. Henry W. Hodges, Clerk.

22a In the Court of Appeals of the District of Columbia.

No. 4871. Radio Commission No. —.

THE PEOPLE OF THE STATE OF NEW YORK, Appellants,

vs.

FEDERAL RADIO COMMISSION.

(In the Matter of the Application of General Electric Company for Modification of License Issued to Station WGY, Schenectady, N. Y.)

Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor.

Now come the People of the State of New York whose interests are affected by a determination of the Federal Radio Commission in the above entitled matter, and state that they are seriously aggrieved by said decision or determination rendered, or license issued, by said Commission on or about the 17th day of October, 1928, effective November 11, 1928, and give notice of their appeal therefrom to the Court of Appeals of the District of Columbia, assigning in support thereof the following:

Reasons for Appeal.

1. Said order, decision or determination, or license issued, by the Federal Radio Commission, above referred to is not such an order or determination as public convenience, interest or necessity requires.

2. Said order, decision or determination, or license
22b issued, by the Federal Radio Commission above referred to does not carry into effect the equality of

radio broadcasting service which the People of the State of New York are entitled to under the provisions of the Federal Radio Act.

ALBERT OTTINGER,
Attorney General for the State of New York, Capitol, Albany, N. Y.

C. T. DAWES,
Solicitor General.

STATE OF NEW YORK,
County of Albany, ss:

C. T. Dawes, being duly sworn, says that he is one of the people of the State of New York and that he is Solicitor General in the Department of Law of the State of New York, and has charge of the above entitled matter; that he has read the foregoing notice of appeal and knows the contents thereof; and that the same is true to his own knowledge except as to matters therein stated to be alleged on information and belief, and that as to those matters he believes it to be true. The sources of deponent's information and the grounds of his belief as to all matters not therein stated upon his knowledge are as follows: Statements and reports of officers and employees of the General Electric Company and petitions, letters, statements and protests of public officers, bodies, institutions and citizens of the State of New York.

C. T. DAWES.

Sworn to before me this 8th day of November, 1928.
PATRICK H. CLUNE,
Notary Public, Albany Co., N. Y.

22c To the Federal Radio Commission,
Washington, D. C.:

Please take notice that the foregoing notice of appeal and the reasons for appeal will be filed forthwith in the Court of Appeals of the District of Columbia, pursuant to the provisions of the Radio Act of February 23, 1927.

Dated November 8, 1928.

ALBERT OTTINGER,
Attorney-General, Attorney for the People of the State of New York, Capitol, Albany, N. Y.

STATE OF NEW YORK,
County of Albany, ss:

Personally before me, Patrick H. Clune, a Notary Public in and for the County of Albany and State of New York, came C. T. Dawes on the 8th day of November, 1928, who first being sworn on oath, deposes and says that he is one of the attorneys for the appellants herein, and that the foregoing is a true copy of a notice of appeal and reasons for appeal to be filed forthwith in the Court of Appeals of the District of Columbia.

PATRICK H. CLUNE,
Notary Public, Albany Co., N. Y.

STATE OF NEW YORK,
County of Albany, Clerk's Office, ss:

I, George R. Happ, Clerk of the said County, and also Clerk of the Supreme and County Courts, being Courts of Record held therein, do hereby certify that Patrick H. Clune, whose name is subscribed to the Certificate of proof or acknowledgment of the annexed Instrument in writing, and endorsed thereon, was, at the time of taking such proof or acknowledgement, a Notary Public, in and for the County aforesaid, dwelling in said County and duly authorized to take same; and that I am well acquainted with the handwriting of the said Notary and verily believe that the signature to the said Certificate of proof or acknowledgment is genuine; and that the said Instrument is executed and acknowledged according to the laws of the State of New York.

I do further certify that the seal of Notary by whom the foregoing acknowledgment was taken is not required by law to be filed in this office.

In testimony whereof, I have hereunto set my hand and affixed my official seal, as County Clerk of said Courts, this 8 day of Nov., 1928.

[Seal County of Albany, July 1841.]

GEORGE R. HAPP, Clerk.

Acknowledgment of Service.

Service of a certified copy of the foregoing notice of appeal and reasons therefor is acknowledged this 9th day of November, 1928.

FEDERAL RADIO COMMISSION,
By DONALD D. HUGHES.

22*d* [Endorsed:] In the Court of Appeals of the District of Columbia. No. 4871. The People of the State of New York, Appellants, vs. Federal Radio Commission. (In the Matter of the Application of General Electric Company for modification of license issued to Station WGY, Schenectady, N. Y.) (Original.) Notice of Appeal to the Court of Appeals of the District of Columbia and reasons therefor. Albert Ottinger, Attorney-General, Attorney for the People of the State of New York, Capitol, Albany, N. Y. Court of Appeals, District of Columbia. Filed Nov. 9, 1928. Henry W. Hodges, Clerk.

On November 30, 1928, the General Electric Company filed in the Court of Appeals in the District of Columbia a second notice of appeal and reasons therefor, this being Appeal No. 4880.

This notice of appeal is as follows:

23 Court of Appeals, District of Columbia. Filed Nov. 30, 1928. Henry W. Hodges, Clerk.

In the Court of Appeals, District of Columbia.

No. 4880. Radio Commission No. —.

GENERAL ELECTRIC COMPANY, Applicant-Appellant,

v.

FEDERAL RADIO COMMISSION.

Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor.

General Electric Company, by Stephen H. Philbin, John W. Guider, Frank J. Hogan, Attorneys.

24 In the Court of Appeals, District of Columbia.

No. —.

GENERAL ELECTRIC COMPANY, Applicant-Appellant,

v.

FEDERAL RADIO COMMISSION.

Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor.

Now, this 30th day of November, 1928, comes the General Electric Company, applicant-appellant in the above entitled proceeding, and says that it is aggrieved by the decision of the Federal Radio Commission rendered on its application for renewal of Radio Broadcasting Station License, for Station WGY, located near South Schenectady, County of Schenectady, State of New York, bearing date October 17, 1928, of which notice was sent this Applicant-appellant under date of October 27, 1928, and by it received October 29, 1928, which said decision became effective November 11, 1928, and constituted a refusal of said General Electric Company's application for renewal of existing station license theretofore issued to and at the time held by it; and the General Electric Company hereby gives notice of its appeal from the aforesaid decision to the Court of Appeals of the District of Columbia, and assigns in support thereof the reasons for appeal hereinafter set forth.

GENERAL ELECTRIC COMPANY,
FRANK J. HOGAN,
Its Attorney.

25 Reasons for Appeal.

The reason for this appeal is because the Federal Radio Commission has threatened to deprive the General Electric Company of its property right to use broadcasting facilities of station WGY in full time operation on a frequency of 790 kilocycles, or any frequency substantially equivalent.

The Commission decided that WGY should cease to operate on November 11, 1928, at 3 A. M., Eastern Standard time, as a full time station on 790 kilocycle frequency or

any equivalent frequency, thereby depriving a community of approximately 2,400,000 people of any satisfactory program radio service.

The Commission has failed to serve "public interest, convenience, or necessity" in refusing to authorize continuance of the public service heretofore rendered by WGY; has failed to afford the General Electric Company an opportunity to be heard under reasonable rules and regulations with respect to its applications for continuance of broadcasting service; and has otherwise failed to comply with the provisions of the Radio Act of February 23, 1927.

The facts and procedings which caused this appeal appear from the following, to wit:

1. The General Electric Company is the owner and operator of the radio broadcasting station, known as WGY, and located in the City of Schenectady, State of New York, and has owned and operated this station since February 20, 1922. Since May 21, 1923, WGY has been regularly operating under licenses issued by the Department of Commerce and by the Federal Radio Commission, which Commission was created by the Radio Act of 1927, approved February 23, 1927. Of more than 600 broadcast stations in the United States, only nine other stations have as long a service
26 record as WGY. Its priority rights, based on long and excellent service, are very great.

WGY is one of the most important development stations in the world. Through its assistance, apparatus has been developed, which is now adopted by the leading broadcasting stations everywhere, and the Department of Commerce has recognized the technical achievements of WGY, by designating it as one of a special class of stations, known as Development Broadcasting Stations, of which there were only three. Among the major improvements developed are the following: higher power transmitters, larger vacuum tubes, condenser microphones, accurate maintenance of assigned frequency, and short wave experimental broadcasting.

In the construction and operation of WGY, to develop the radio art, especially the broadcasting art, and to furnish to the public broadcasting of the highest quality, the General Electric Company has provided apparatus, equipment and instruments of the highest quality, and has invested more

than one and a half million dollars. The General Electric Company has a very valuable property right, created by the broadcasting service originated and carried on by WGY since February 20, 1922.

2. Within 100 miles of WGY, there is a population of approximately 2,400,000, including residents in Albany, Troy, Amsterdam, Utica, Poughkeepsie, Hudson, Saratoga, Rome, Kingston and Glen Falls in New York State, Pittsfield and Adams in Massachusetts, Rockland in Vermont, and many towns, villages and farms in the States of New York, Massachusetts, Vermont and New Hampshire. There are many institutions within this area, devoted to the welfare of the afflicted and poor, such as Disabled Vet-
27 erans' Hospital at Tupper Lake, N. Y., Albany Hospital for Incurables, Home for Aged at Schenectady, N. Y., the Catskill, Adirondack and Lake George regions containing many hospitals, sanitariums, camps and convalescent homes, because of the characteristics of this region.

3. This community is dependent, and has been since 1922, upon WGY for its only reliable and regular broadcast service. Broadcasting stations in New York City, Boston, Springfield and Rochester do not deliver good program service to this community, because of their distance from this community, and also because of fading, static interference and local conditions. WGY is the only broadcasting station now serving this community with reliable high class service.

Good program service depends largely upon the distance between the listener and the broadcasting station, and the power of the broadcasting station. Reception is usually better at night than in daytime, in the broadcast band. For a high power station, of 50 kilowatt power, the service area within which listeners may receive programs without interference from electric storms and other electrical disturbances, extends from 60 to 100 miles in all directions from the broadcasting station. Stations at greater distances, or of lower power, may be and often are, received further away, but such reception is intermittent, unreliable and unsatisfactory with respect to program service.

The action of the Commission proposed to deprive WGY on November 11, 1928, of its right to continue to furnish its

service to approximately 2,400,000 people, who cannot receive good program service elsewhere.

4. The Radio Act of February 23, 1927, created the Federal Radio Commission. Prior to said Act, and since
28 May 21, 1923, WGY has been regularly operating on a 790 kilocycle frequency or channel, and has been furnishing broadcast service of the highest quality to listeners within its range, the neighboring communities in the States of New York, Massachusetts, Vermont and New Hampshire, receiving such service exclusively from WGY.

The Radio Act provides, Sec. 4, that the Commission "as public convenience, interest or necessity requires," shall classify radio stations, prescribe the nature of their services, assign bands of frequencies, powers and times of operation to the stations, determine the location of classes of stations or individual stations, etc. The Radio Act provides further, Sec. 9, as amended by Act of March 28, 1928:

"That the people of the zones established by section 2 of this Act, are entitled to equality of radio broadcasting service, both of transmission and of reception, * * *."

The Commission after its establishment set aside for broadcasting stations a band of frequencies extending from 550 kilocycles to 1,500 kilocycles.

WGY has continued to operate on its 790 kilocycle frequency under license of the Commission, said license expiring on November 11, 1928, at 3 A. M., Eastern Standard time. This license was granted under date of November 1, 1927, and provided for full time operation on 790 kilocycle frequency.

Copy of said license of November 1, 1927, is attached to notice and reasons for appeal in the case of General Electric Company, applicant-appellant, v. Federal Radio Commission, No. 4870, filed in this Court November 9, 1928, as Exhibit A thereto; and is hereby made Exhibit A hereto and incorporated herein by reference as fully as if
29 physically attached hereto. All other exhibits hereinafter referred to are attached to the above mentioned notice and reasons for appeal, in case No. 4870 in this Court, filed, as aforesaid, November 9, 1928, and are identified in that case by the symbols herein used; all ex-

hibits referred to herein are incorporated herein by reference to the aforesaid earlier appeal as fully as if physically attached hereto. Copies of all of said Exhibits were esrved on and forwarded to The Federal Radio Commission on November 9th, 1928.

By letter of January 4, 1928, the Commission requested the General Electric Company to file application for extension, which application was filed under date of January 14, 1928, with letter of same date, copies of said letters and application are Exhibits B-1, 2 and 3 hereto.

Under date of August 30, 1928, by General Order No. 40, the Commission assigned the frequency of 790 kilocycles to the Fifth Radio Zone, comprising Western States, and in accompanying statement declared that this frequency and 39 others were channels on which "only one station will be permitted to operate at any time during night hours." By this Order, the frequency of 790 kilocycles was made a Fifth Zone frequency, "for full-time operation, that is to say, twenty-four hours daily and every allocation herein of a frequency to a particular zone is to be considered as carrying with it an assignment of full-time operation on that frequency to that zone." This Order and Statement are Exhibit C-1 hereto.

Under date of September 11, 1928, the Commission addressed a circular letter to "All Persons Holding Licenses to Broadcast," attaching a list of broadcasting stations, including:

30 "Assignments

Station	Former Location	Owner
WGY	S. Schenectady	Gen. Elec. Co.
Shared with	Power	KC
	50,000	790
	New	
Shared with	Power	KC
Limited	*50,000	790."

The asterisk refers to General Order No. 42, which relates to power of transmitting stations.

An Addendum attached to this list stated:

"The following stations, included in the foregoing list, are to be classed as part-time stations:

Station	Location
WGY	Schenectady, New York.

The foregoing stations will not be permitted to operate during the evening hours simultaneously with other stations assigned to the same frequencies.
'Day' in list means daytime operation only."

This circular letter is Exhibit D-1 hereto.
Under date of October 23, 1928, the Commission issued a revised list of broadcasting stations, Exhibit E hereto, superseding the previous list, said list containing:

"790 kilocycles—*WGY Schenectady, New York, General Electric Co., 50,000 ltd. time."

31

The asterisk refers to General Order No. 42, which relates to power of transmitting stations.

By General Order No. 48 of October 24. 1928, which refers to General Order No. 41 dated September 4, 1928, Exhibits F, F-1 hereto, a "limited time" broadcasting station is permitted to operate up to the average time of sunset at the unrestricted station to the west of the limited station, or a other time at which the unrestricted station is temporarily not using the frequency, if such operation does not cause heterodyne interference. In the present case, the WGY 'limited license" bearing date October 17, 1928, served on this appellant, October 29, 1928, and effective, according to its terms, November 11, 1928, provides for operation on 790 kilocycles, and station KGO at Oakland, California, has a full time, unlimited license on 790 kilocycles. The average time of sunset at Oakland corresponds to 8.01 P. M. Eastern Standard time, in November. Under present conditions of operation, there will be heterodyne interference between KGO and WGY if they operate simultaneously. The orders of the Commission require WGY

to suspend operations at 8.01 P. M., or earlier, Eastern Standard time, during the month of November.

On October 4, 1928, the General Electric Company made application for a modification of the allocation of the Commission, Exhibit G hereto. On October 23, 1928, the General Electric Company made application for renewal of its license of November 1st, 1927, which application and accompanying papers are Exhibit H-1 hereto. October 29, 1928, the General Electric Company received a 'limited license" from the Commission, dated October 17, 1928, Exhibit I hereto. On November 3, 1928, the General
32 Electric Company filed an application for a modification of the "limited license," with letter of same date; Exhibit J-1 hereto.

The letter of November 3, 1928, respectfully requested a hearing by the Commission on the application of same date on either Wednesday or Thursday, November 7th or 8th, 1928. No reply has been received to this request.

By reason of the aforesaid action of the Commission WGY would have been compelled to discontinue its broadcasting service on November 11, 1928, at 8.01 P. M., Eastern Standard time, or be subject to such penalties for violations of the Radio Act as it may lawfully provide, which, if lawful, may include "a fine of not more than $500 for each and every offense," Sec. 32. Under order of the Court of Appeals of the District of Columbia, entered November 9th, 1928, WGY's former service has been, and is now being, continued.

The Commission has discriminated unfairly against WGY and the communities of approximately 2,400,000 people which it serves. The order of the Commission have allocated four full-time frequencies, or channels to New York State. New York City broadcasting stations have been given three of these frequencies, namely WJZ, WEAF, and WABC, the other frequency being given to station WHAM at Rochester, New York. The Commission has also licensed to operate in New York City approximately 30 other broadcasting stations, on regional and local channels so that the communities in and near New York City have been provided with a wide and excellent variety of program service.

None of the broadcasting stations allotted frequencies by the Commission, unlimited, regional or local, has ever furnished, or can now furnish, the community of
33 approximately 2,400,000 people near Schenectady with satisfactory program service.

The Commission has failed to provide a sufficient number of unlimited frequencies or channels. It has allocated forty such frequencies throughout the United States, eight frequencies for each of the five zones. At least fifty such frequencies should have been provided, as was recommended to the Commission by a conference of representative radio engineers, including Dr. J. H. Dellinger of the Bureau of Standards, acting chairman, in a report released by the Commission under date of April 11, 1928, recommending fifty channels of frequencies for stations operating on 5,000 to 50,000 watts power, as "the minimum that should be provided."

The Commission disregarded the report of these engineers, and provided only forty such frequencies. The Radio Act does not limit the number of such frequencies to forty frequencies, and the Commission could have lawfully provided fifty such frequencies.

Federal Radio Commissioner O. H. Caldwell stated on November 7th, 1928, according to the New York Times of November 8th, 1928, p. 31, that:

"Some of the commissioners felt that twenty-five cleared channels for the entire country would be sufficient, but the engineers called into consultation strongly advised fifty cleared waves. I agree with the engineers' recommendations that fifty stations operating on exclusive channels without interference will greatly improve broadcasting service in the United States. If we can get fifty cleared waves we can clear up the WGY part-time arrangement and give that station an exclusive channel instead of ordering it to close at sunset on the Pacific coast, when KGO at Oakland goes on the air."

34 Because of the reasons herein set forth and appearing from the attached Exhibits, the General Electric Company has appealed from the refusal of the Federal Radio Commission to allow it to continue the exercise of its

right to use broadcasting facilities of station WGY in full-time operation on a frequency of 790 kilocycles, or any frequency substantially equivalent.

GENERAL ELECTRIC COMPANY.
FRANK J. HOGAN,
Attorney.

November 30, 1928.

35 *Verification.*

DISTRICT OF COLUMBIA, *ss:*

Frank J. Hogan, being first duly sworn, deposes and says that he is the attorney of the applicant-appellant General Electric Company; that he has read the foregoing notice of appeal and reasons therefor; that the matters and things therein set forth on personal knowledge are true, and those therein stated on information and belief he verily believes to be true.

[Seal Marie McDonald, Notary Public, District of Columbia.]

MARIE McDONALD.
MARIE McDONALD,
Notary Public, District of Columbia.

Notice to Federal Radio Commission.

The Federal Radio Commission will please take notice that the foregoing notice of appeal and reasons therefor will be filed by General Electric Company forthwith in the Court of Appeals of the District of Columbia, pursuant to the provisions of the Radio Act of February 23, 1927; and, further, that it will move the said Court of Appeals for an order requiring the said Federal Radio Commission to allow it to continue to operate for full time on 790 kilocycle frequency with its present power, or on an equivalent frequency and power without time limit, during the pendency of its appeal.

FRANK J. HOGAN,
JOHN W. GUIDER,
JOHN W. GUIDER,
Attorneys for Applicant-Appellant,
General Electric Company.

Washington, D. C., November 30, 1928.

36 *Certificate.*

The undersigned, Frank J. Hogan, personally appearing before Marie McDonald, a Notary Public in and for the District of Columbia, the said Frank Hogan, being first duly sworn, deposes and says that he is one of the attorneys for the General Electric Company, applicant-appellant herein, and that the foregoing is a true copy of the notice of appeal and reasons therefor to be filed forthwith in the Court of Appeals of the District of Columbia.

FRANK J. HOGAN.

Subscribed and sworn to before me this 30th day of November, 1928.

[SEAL.] MARIE McDONALD.

MARIE McDONALD,
Notary Public, District of Columbia.

Acknowledgment of Service.

Service of a certified copy of the foregoing notice of appeal and reasons therefor is acknowledged this 30th day of November, 1928.

FEDERAL RADIO COMMISSION,
By —— ——.

37 In the Court of Appeals of the District of Columbia.

4870.

GENERAL ELECTRIC COMPANY, Operating Station WGY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee,

and

4871.

PEOPLE OF THE STATE OF NEW YORK, Appellants,

v.

FEDERAL RADIO COMMISSION, Appellee.

Preliminary Statement.

The Federal Radio Commission, appellee herein, files this Statement of Facts and Grounds for Decision under pro-

test and saving and reserving all rights it may have with respect to certain motions heretofore filed with and now pending before this Court: (1) its motion to dismiss the appeal and (2) its motion to strike the notice of appeal and reasons therefor from the files.

Proceedings.

This is a proceeding under the Radio Act of 1927, approved February 23, 1927, and the amendment thereto approved March 28, 1928. It is before this Court by reason of a purported appeal from the action of the Federal Radio Commission and is brought under Section 16 of the Radio Act which provides for an appeal to the Court of Appeals of the District of Columbia from certain decisions of the Federal Radio Commission.

In preparing this Statement, appellee assumes that the decision complained of by appellant is either (1) appellee's decision of October 12, 1928, granting appellant's application for renewal of license with a limitation on
38 hours of operation, or (2) appellee's decision of the same day denying appellant's first application for modification.

The General Electric Company, appellant herein, was first licensed to operate station WGY under Acts of Congress approved August 13, 1912, c. 287, 37 Stat. 302; March 4, 1913, c. 114, 36 Stat. 736.

Appellant's first application for license was filed with the Department of Commerce, Bureau of Navigation, January 23, 1922. (Document No. 1). On February 4, 1922, the Secretary of Commerce acted upon this application, granting a license to appellant to operate its station for a period of three months. (Document No. 2) Appellant has continued to operate its station WGY under further licenses granted by the Secretary of Commerce for periods of three months, these licenses becoming effective on the following dates: April 24, 1922; June 19, 1922; September 19, 1922; September 27, 1922; December 27, 1922; March 17, 1923; May 21, 1923; August 21, 1923; November 15, 1923; February 11, 1924; May 1, 1924; July 18, 1924; October 9, 1924; January 28, 1925; April 24, 1925; July 27, 1925; October 26, 1925; July 19, 1926; October 16, 1926; and January 22,

1927. Documents Nos. 4, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 37, 31, 33, 35, 38, 40 and 44).

The Radio Act of 1927 repealed the Act of 1912 and constituted the Federal Radio Commission as the licensing authority in carrying out the provisions of the new act. Appellant continued the operation of its station WGY under licenses granted by the Federal Radio Commission.

On April 5, 1927, the Federal Radio Commission took its first action as the licensing authority with respect to appellant by promulgating its General Order No. 5, which provides in part as follows: (Document No. 48)

"The Federal Radio Commission will issue a temporary permit to operate a radio broadcasting station, good only until final action is taken by the Commission on the application for license, to each holder of a license or an extension thereof from the Secretary of Commerce under the Act of August 13, 1912, whose application for a license under the Radio Act of 1927 has been received by the Federal Radio Commission on or before April 24, 1927, and such temporary permit shall, until withdrawn, be considered as having the force and effect of a license in so far as the penalties provided in the Radio Act of 1927 are concerned."

39 On April 16, 1927, appellant, complying with the above order, filed with the Commission its application for a radio station license for station WGY (Document No. 49) and under date of April 21, 1927, appellant was authorized by the Commission to operate its station, pending final action on this application. (Document No. 50). On June 1, 1927, appellant was authorized to operate its station for the term ending July 31, 1927. (Document No. 51). The period of this license was extended by General Order No. 13 of the Commission to terminate August 14, 1927. (Document No. 53).

Upon application of appellant filed August 10, 1927, the existing license was extended to terminate October 14, 1927 (Document No. 56), and later extended to terminate October 31, 1927. (Document No. 57). On November 1, 1927, appellant was licensed to operate for the term beginning on the latter date and ending December 31, 1927. (Document No. 59). This license was continued in effect by the

Commission's General Orders numbered 21, 22, 23, 25, 27, 33, 35, 38 and 44, until November 11, 1928. (Documents Nos. 60, 61, 62, 63, 64, 65, 66, 67 and 68). On January 16, 1928, appellant filed with the Commission application for renewal of its then existing license, dated January 14, 1928. (Document No. 69). This application was favorably acted upon by the Commission on October 12, 1928 (Document No. 95), on which date the Commission directed that a renewal license be issued for the period beginning November 11, 1928, at the hour of 3 o'clock a. m. Eastern Standard Time, this being the date of expiration of the then existing license, and ending January 31, 1929. On October 17, 1928, this license issued. (Document No. 99).

By the terms of this license appellant's station WGY was classed as a limited time broadcasting station as that term is defined in the Commission's General Order No. 48. (Document No. 104).

Previous to the time of renewal of appellant's license, namely on or about August 30, 1928, the Commission promulgated its General Order No. 40. (Document No. 73). By this order the 90 channels (frequencies) available for the use of broadcasting stations of this country were allocated and assigned in equal proportion to the five zones established by the Radio Act of 1927. This action was taken for the purpose of carrying out the provisions of the Davis Amendment of March 28, 1928, with respect to the establishment of equality of broadcasting service, and for the further purpose of securing adequate conditions of reception for the public. General Order No. 40 (Document No. 73) provides in part as follows:

"A. The following frequencies are allocated to the First, Second, Third, Fourth and Fifth Zones, respectively, as below indicated for use by broadcasting stations, the amount of power to be used by such stations to be determined by further order of the Commission:

First Zone: 660, 710, 760, 860, 990, 1060, 1100 and 1150 kc.

Second Zone: 700, 750, 820, 980, 1020, 1070, 1110 and 1170 kc.

Third Zone: 650, 740, 800, 850, 1040, 1080, 1140, and 1190 kc.

Fourth Zone: 670, 720, 770, 810, 870, 1000, 1090, and 1160 kc.

Fifth Zone: 640, 680, 790, 830, 970, 1050, 1130, and 1180 kc.

This portion of the order affected appellant, in that the frequency of 790 kilocycles then used by it was allocated to the Fifth Zone for full time use. Appellant's station WGY is in the First Zone. Appellant was duly notified of the promulgation of this order and furnished a copy thereof immediately following the date of its issuance, to wit; on or about September 1, 1928.

The Commission on September 8, 1928, assigned the various broadcasting stations then licensed to the 90 channels in accordance with the allocation established by General Order No. 40. The amount of power to be used and the time of operation of each station so assigned was specified.

The Commission made the following findings with respect to these assignments:

"1. With respect to each broadcasting station, the new assignments of frequency, power and hours of operation will serve public interest, convenience, or necessity.

"2. All changes in frequency, authorized power and/or hours of operation which said new allocation will impose on existing broadcasting stations will promote public convenience and interest, and will serve public necessity, and are necessary to prevent interference between broadcasting stations.

41 "3. With respect to all assignments of frequency, authorized power and hours of operation specified in said new allocation, and with respect to all changes thereof imposed by said new allocation, said assignments and said changes are necessary to carry out and to comply with the provisions of the Radio Act of 1927 and the provisions of Section 5 of the Act of Congress approved March 28, 1928, entitled "An Act continuing for one year the powers and authority of the Federal Radio Commission under the Act of 1927, and for other purposes," and with the provisions of General Order No. 40 of the Commission.

"All the foregoing findings, however, are to be considered tentative and subject to such new facts and considerations as may be brought to the attention of the Commission prior to November 11, 1928. The Commission thereupon de-

termined upon the following course of procedure for putting said new allocation into effect:

"1. That said new allocation shall become effective at the hour of 3 o'clock a. m. Eastern Standard Time, November 11, 1928, with respect to all broadcasting stations listed therein which at that date shall be in operation under licenses issued by the Commission, and which shall, prior to that date, have received licenses, renewals of licenses or extensions of licenses authorizing them to operate after that date.

"2. That with respect to all stations listed therein which are now licensed by this Commission and which have on file with this Commission applications for renewal of licenses, the Commission will examine such applications and on or shortly after October 12, 1928, will issue renewals of licenses in all cases where it finds that public interest, convenience or necessity will be served thereby, said renewals however, to authorize the frequency, power and hours of operation set forth in said new allocation. In all cases where the Commission is not satisfied that public interest, convenience or necessity would be served by granting of applications for renewals, the Commission will hold hearings in accordance with Section 11 of the Radio Act of 1927, and pending the conclusion of such hearings will modify the existing licenses of such applicants in accordance with said new allocation and will extend such licenses thus modified for a limited period of time beyond November 11, 1928.

"3. That hearings will be accorded to all stations making proper application therefor asking for modification of the assignments indicated in said new allocation said applications to take the form of requests for modification of the licenses or renewal of licenses to be issued on or shortly after October 12, 1928; that such hearings will, so far as possible, be held during the period between October 12 and November 11, 1928; that applications for such modifications will be received prior to October 12 as well as thereafter.

"4. That in the event that as a result of any such application for modification and/or of any hearing granted thereon, the assignment of any broadcasting station is changed, the said new allocation is to be considered as changed accordingly."

42 Appellant's assignment was as follows:

			Assignments.					
			Former.			New.		
"Station.	Location.	Owner.	Shared with.	Power.	Kc.	Shared with.	Power.	Kc.
WGY	S. Schenectady.	General Electric Co.	....	50000	790	Limited	50000	790

Addendum.

"The following stations, included in the foregoing list, are to be classed as part-time stations:

* * * * * * *

Station.	Location.
WGY	Schenectady, New York

* * * * * * *

"The foregoing stations will not be permitted to operate during the evenings hours simultaneously with other stations assigned to the same frequencies."

(The entire action of the Commission as set forth in the foregoing is found in Document Nos. 78-80.)

On September 8, 1928, the Commission promulgated the following rules and regulations with respect to the procedure to be followed by licenses affected by General Order No. 40, and the assignments made thereunder: (Document No. 78)

"It is the intention of the Commission to issue renewal licenses to most of the existing broadcasting stations listed in the attached list on or shortly after October 12, 1928, said licenses to be for a period of 90 days commencing on November 11, 1928. These licenses will correspond to the data on the attached list with respect to the frequency, the authorized power, and the hours of operation to be assigned to the respective stations. They cannot be issued prior to that date because of a provision in the Radio Act of 1927 forbidding the granting of a renewal of an existing station license more than 30 days prior to the expiration of the original license. The existing licenses are being extended by order of the Commission for 42 days from October 1, 1928, to terminate cn November 11, 1928, at the

hour of 3 o'clock a. m., Eastern Standard Time. This extension of time prior to the effective date of the reallocation will give all broadcasting stations an opportunity to take such steps as may be necessary to enable them to conform to their new assignment, and also to ask for and obtain from the Commission hearings in cases where the assignment sare not satisfactory. In a limited number of cases where the Commission is not satisfied that public interest, convenience or necessity would be served by the granting of renewal licenses to existing broadcasting stations, the Commission will so notify the licensees and hearings will be held before renewals will be granted.

43 "It is the desire of the Commission that any broadcasting station which is dissatisfied with its assignment under the reallocation should have an opportunity to be heard and to demonstrate that public interest, convenience or necessity would be served by a better assignment. In fairness to the stations affected the Commission believes that these hearings should, so far as possible, take place prior to November 11, 1928, the effective date of the reallocation. The Commission will therefore entertain and accord a hearing on all applications asking for a modification of the renewal licenses which will be issued on or shortly after October 12, 1928. In order to save time, the Commission will permit such applications to be filed prior to that date, and will set them for hearing as soon after that date as possible.

"All such applications must specify what frequency, power, and/or hours of operation are desired by the applicant; no application will be entertained which fails to comply with this requirement. As soon as the date for hearing is set, the Commission will notify all broadcasting stations which are directly interested and will give them an opportunity to be heard as well as the applicant. Where the application is for a change in frequency, all broadcasting stations assigned to the requested frequency will be so notified. Where the application is for an increase in power all broadcasting stations assigned to the frequency on which the proposed increased power is to be used, as well as all stations assigned to adjacent channels that are likely to be affected by the increase, will be so notified. Where the application is for an increase or change in hours of operation, all sta-

tions the hours of operation of which would be reduced or changed thereby will be so notified.

"Applications should be made on forms to be provided by the Commission. It is expected that such forms will be in the hands of the Radio Supervisors in the near future but in the meantime they may be obtained by application to the Secretary of the Commission."

The rules above set forth are in addition to other general regulations with respect to hearings established by the Commission and set forth in its General Order No. 37. (Document No. 72.)

The foregoing were immediately brought to the attention of appellant. A statement of appellant's new assignment, together with the assignments of all other stations, accompanied by a copy of the rules and regulations above quoted were mailed to appellant on or about September 10, 1928. On or about September 25, 1928, appellant was further informed with respect to its assignment as follows: (Document No. 85.)

44 Federal Radio Commission, Washington, D. C.

September 25, 1928.

"Mr. Martin P. Rice,
General Electric Company,
1 River Road,
Schenectady, N. Y.

DEAR MR. RICE:

"Answering your inquiry as to the conditions of operation of the two General Electric broadcasting stations under your direction, WGY and KGO, assigned to channel 790 kilocycles by the new allocation:

"It is the Commission's understanding that while this channel is assigned to the Fifth Zone and to KGO, there is nothing in any Commission regulation or order which will prevent you, as KGO's manager, from modifying KGO's operating time slightly so that both WGY and KGO may enjoy exclusive-channel operation, and each with a time schedule at least 90 per cent of its present operating hours. This can be accomplished as follows:

"Station WGY operates throughout daytime, and during evening to 10 p. m.

"Station KGO operates throughout daytime, stands by from sunset to 7 p. m., and resumes operation from 7 p. m. throughout rest of night.

"Since both stations are under your personal management, this schedule can be varied at will, from night to night, to conform to special features on either station. Thus, if KGO stands by until 8 p. m., WGY may run until 11 p. m. The only restriction imposed by the Commission is that the two stations shall not operate simultaneously while the intervening distance is linked by darkness, (unless the two stations are later synchronized, in which case the remaining hour can be used simultaneously without interference.

"In order that there may be no doubt in your mind that the schedule above is the understanding of a majority of the Commission, I have asked my associates to read and initial this statement, which should set at rest the misleading reports appearing that Station WGY was to be limited to "daylight" or "one-hour" operation.

"You are undoubtedly aware that in its efforts to reduce interference and improve radio reception, under the difficult requirements of the equalizing law, the Commission has had to impose time-sharing and reduced schedules on many stations. In certain cities great 5000-watt stations are dividing time—even four and five to a wavelength. Several hundred stations have been reduced to half-time operation.

"In the face of the severe restrictions thus imposed on many other broadcasters, the Commission feels sure
45 that you will willingly cooperate toward better radio with a slight limitation of your own broadcasting hours, as above suggested,—an arrangement made possible by sharing the 790 kilocycle channel between your own stations, with the aid of the three-hour time difference—rather than adding WGY onto one of New York State's hour exclusive channels, now occupied by WEAF, WJZ, WABC and WHAM, which would impose severe time-division on these New York exclusive channel stations, and deprive the public of at least one high-power transmitter 24 hours a day, (instead of one hour a day).

"No one could be more appreciative than the members of the Commission of the splendid service which WGY has been rendering the listeners of central New York, nor of

the contributions to the radio art made through this station. Personally, I regret that fifty clear channels were not set aside for high-power broadcasters, so that New York's proportion would have been sufficient to take care of all of her great stations. But with conditions as they are, and all things considered, the Commision feels that the allication as made, secures the greatest possible use for New York's facilities, even if at the cost of an hour's reduction of your operating time, which, I am sure, you will gladly concede, in the interest of a reallocation set-up that will bring improved radio to millions of listeners.

"Very truly yours,

O. H. CALDWELL,
Commissioner."

On October 4, 1928, appellant filed with the Commission an application for modification of its proposed assignment, dated October 4, 1928. (Document No. 92.) This application requested an assignment of unlimited time on the frequency of 790 kilocycles, and a power assignment of 150,000 watts. This application was inconsistent with General Order No. 40, in that it specified a frequency which was not available to any station located in the first zone for unlimited time of operation. This frequency had been allocated to the fifth zone as a clear channel on which no other station would be permitted to operate during the evening hours. This application was further inconsistent with General Order No. 42 (Document No. 76) which provides that the power of any station shall not exceed 25,000 watts, except in certain cases when 50,000 watts are permitted for daytime operation or experimental purposes.

On October 12, 1928, there was presented to the Commission a revision of the tentative asignments made under General Order No. 40, and having examined all assignments the Commission made the following finding: (Document No. 95.)

46 "1. With respect to each broadcasting station listed therein, the assignment of which is the same as is set forth in the allocation adopted on September 8th, the Commission reaffirms its finding that such assignments

will serve public interest, convenience or necessity and are necessary to prevent interference between broadcasting stations.

* * * * * * *

"5. With respect to all assignments of frequencies, authorized power, hours of operation specified in said revised allocation and with respect to all changes thereof imposed by said revised allocation, said assignments and said changes are necessary to carry out and to comply with the provisions of the Radio Act of 1927 and the provisions of Section 5 of the Act of Congress approved March 28, 1928, and with the provisions of General Order No. 40 of the Commission."

The Commission then entered the following order:

"1. That to each broadcasting station listed in said revised allocation which has an application for renewal of its license pending before the Commission, a renewal license be issued for the frequency, power and hours of operation indicated in said revised allocation.

* * * * * * *

"4. That each license or renewal license issued under the foregoing directions be so worded as to take effect on November 11th at the hour of 3 o'clock A. M., Eastern Standard Time and to terminate on January 31st, 1929 at the hour of 3 o'clock A. M., Eastern Standard Time."

On the above date a license was issued to appellant. (Document No. 99.)

On October 12, 1928, the Commission having examined the application of appellant, dated October 4, 1928, and it appearing that said application was inconsistent with General Order No. 40, the Commission denied the same. (Document No. 97.) Appellant was duly notified of this action. (Document No. 98.)

On October 18, 1928, appellant was notified as follows, with respect to its application:

47 "Federal Radio Commission, Washington, D. C.

#288.

October 18, 1928.

"General Electric Company,
Schenectady, N. Y.

Attention Mr. Martin P. Rice.

"GENTLEMEN:

"Apparently there has been a misapprehension on your part as to the action taken by the Federal Radio Commission on your recent application for modification of your license, effective November 11, 1928. This misapprehension seems to have been conveyed to a large number of listeners of Station WGY.

"In filing the application in question, you disregarded fundamental rules and regulations of the Commission, copies of which were mailed to you over a month ago. These rules and regulations have been brought to the attention of your representatives repeatedly during the past week and they have been told that there is no difficulty in the way of obtaining a hearing, provided you file a new application which is in compliance with the very reasonable requirements made by the Commission.

"The rules and regulations in question are General Orders Nos. 40 and 42. Under General Order No. 40, the forth cleared channels have been divided equally among the five zones,—eight channels to each zone. The particular channels assigned to the first zone are 660, 710, 760, 860, 990, 1060, 1100 and 1150.

"Instead of applying for one of these channels you applied for a channel assigned to the fifth zone, composed of the states of the far west. What you are really asking the Commission to do is to take away a channel from the fifth zone and give it to the first zone, in violation of the requirements of the Radio Act, as amended, with the inevitable result of breaking down the structure which the Commission has built up after months of work, careful study and consultation with the leading radio engineers of the country.

"In addition, your application requests a power assignment of 150,000 watts, although you must have known that, under the terms of General Order No. 42, the maximum power that the Commission will license on any channel is 25,000 watts, together with an additional 25,000 watts, the continuation of which will depend upon whether interference results.

"In this respect, your application is asking a favor from the Commission which has not been and will not be granted to any station in the country, so long as General Order No. 42 is in effect.

48 "To obtain a hearing, all you have to do is to file a new application specifying a channel which is available to the first zone, and amount of power which is permitted under General Order No. 42. With such an application on file, the Commission will be glad to accord you a hearing just as it would any other applicant. There is no necessity, however, for having a hearing as to the question of whether or not your present application complies with the rules and regulations of the Commission, since it is manifest from an inspection of the documents that it does not. You are, of course, free to attack the whole structure by questioning the validity of these regulations on appeal.

"The Commission feels, however, that your listening public should be informed that if you do not obtain a hearing, it is due to your unwillingness to comply with rules that all other broadcasting stations are at present complying with.

"Very truly yours,

(Signed) LOUIS G. CALDWELL,
General Counsel."

On October 24, 1928, appellant filed with the Commission an application for renewal of its then existing license, and on November 5, 1928, an application for modification of its proposed assignment, in which it requested the frequency represented by 790 kilocycles "or any frequency substantially equivalent to enable continuance of WGY's public service." These applications had not been acted upon by the Commission at the time of the filing of the petition in this cause.

On November 9, 1928, appellant served upon the Federal Radio Commission its Notice of Appeal and on the same date applied to this Court for a stay of proceedings pending the determination of said appeal.

Appellant's omission to comply with Section 16 is not due to any lack of knowledge or inability to obtain information. The Federal Radio Commission advised appellant of every action taken by it and, with infinite patience, communicated with appellant's representatives by telephone, letter, and personal conference, answered every inquiry, and furnished all information requested.

49 *Statement of Facts.*

On October 12, 1928, the Commission authorized the renewal of appellant's then existing license upon the application therefor dated January 14, 1928. This action was pursuant to Section 11 of the Radio Act 1927, which provides in part as follows:

"Sec. 11. If upon examination of any application for a station license or for the renewal or modification of a station license the licensing authority shall determine that public interest, convenience, or necessity would be served by the granting thereof, it shall authorize the issuance, renewal, or modification thereof in accordance with said finding. In the event the licensing authority upon examination of any such application does not reach such decision with respect thereto, it shall notify the applicant thereof, shall fix and give notice of a time and place for hearing thereon, and shall afford such applicant an opportunity to be heard under such rules and regulations as it may prescribe."

At the time this application received consideration certain regulations made by the Commission under the powers conferred in Section 4 of the act, were in effect. This section provides in part:

"Sec. 4. Except as otherwise provided in this Act, the commission, from time to time, as public convenience, interest, or necessity requires, shall——

* * * * * *

(*f*) Make such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry out the provisions of this Act: Provided, however, That changes in the wave lengths, authorized power, in the character of emitted signals, or in the times of operation of any station, shall not be made without the consent of the station licensee unless, in the judgment of the commission, such changes will promote public convenience or interest or will serve public necessity or the provisions of this Act will be more fully complied with;"

These regulations were promulgated for the purpose of preventing interference and to carry out the provisions of the amendment, approved March 28, 1928, which provides "for equality of service as to transmission and reception between the various zones and the states within each zone."

The regulations refered to are included in the Commission's General Order No. 40 of August 30, 1928. This order provides in part:

50 "That a band of frequencies extending from 550 kc/s to 1500 kc/s, both inclusive, be * * * assigned to and for the use of broadcasting stations. * * *

"That within said broadcast band the separation of 10 kilocycles be maintained between the frequencies assigned for use by broadcasting stations."

The effect of this portion of the order is to establish 96 operating channels for the use of all broadcasting stations. Six of these channels are reserved for the exclusive use of broadcasting stations located in the Dominion of Canada in accordance with an informal agreement entered into by representatives of the regulatory bodies of the two countries.

The 90 remaining channels are allocated in equal proportion to the five zones created by the act, in compliance with the provisions of the amendment above referred to.

General Order No. 40 also regulates the use of each of these channels by limiting the number of stations, the power used, and the time of operation. On forty of the channels, referred to as 'exclusive," or "clear" channels, no two

stations are permitted to operate simultaneously except during the hours of daylight, or at such times that interference will not be caused by such simultaneous operation. On the 50 channels remaining, two or more stations are permitted to operate simultaneously with power limited as follows: 6 channels, 100 watts; 40 channels, 1,000 watts; 4 channels, 5,000 watts. These channels are generally referred to as "local" and "regional" channels, their designations relating to the territory or area which the stations occupying these channels may be expected to serve.

The regulations with respect to "exclusive," "regional" and "local" channels were made by the Commission after an extended investigation and consideration of all factors involved affecting public interest, including the necessity of reducing interference and carrying out the provisions of the Davis Amendment. The problems involved were submitted by the Commission to a group of experts consisting largely of expert radio engineers. This group submitted a memorandum to the Commission on March 30, 1928, suggesting two plans with respect to the number of "exclusive" or "clear" channels. In one of these
51 plans 50 exclusive channels were provided, in the other 30 exclusive channels. (Document No. 120 Appendix E (3).) The broadcasting committee of the Institute of Radio Engineers submitted a report (Document No. 120 Appendix E (4).) covering these matters. On April 6, 1928, the Commission conferred again with a group of radio engineers (for a summary and discussion of this conference see Document No. 120 Appendix E (6).) On April 23, 1928, the Commission held a further hearing to permit the radio industry to express its views with respect to the reduction of interference and the application of the Davis Amendment. This was attended by representatives of practically all interests concerned directly or indirectly with broadcasting activities. A series of recommendations was made to the Commission. (Document No. 120 Appendix E (9).)

The Commission having received the benefit of the judgment of many individuals, including the best qualified engineers and being familiar with the divergence of opinion relating to the proper number of "exclusive" channels, determined that public interest, convenience and necessity

would best be served by the establishment of 40 "exclusive" channels, 44 "regional" channels, and 6 "local" channels. This decision was carried into effect by General Order No. 40, above referred to.

These 40 exclusive channels were allocated in equal proportion to the five zones, each zone receiving the use of 8 channels.

Appellant's station WGY located at Schenectady, New York, is in the first zone. Based upon the estimates of 1928 population as prepared by the United States Census Bureau, New York bears the following relation to other states in this zone:

State.	Population.	Per cent (20% total for zone).	Per cent (100% total for zone).
Maine	795,000	.581	2.90
New Hampshire	456,000	.333	1.60
Vermont (1920 Census)	352,428	.258	1.30
Massachusetts	4,290,000	3.135	15.60
Connecticut	1,667,000	1.218	6.10
Rhode Island	716,000	.523	2.60
New York	11,550,000	8.441	42.20
New Jersey	3,821,000	2.793	13.90
Delaware	244,000	.178	.90
Maryland	1,616,000	1.180	5.90
District of Columbia	522,000	.403	2.00
Porto Rico (1920 Census)	1,299,809	.949	4.70
Virgin Isl. (1917 Census)	26,051	.019	.90
	27,385,288	20.011%	100.60%

52 The following shows the number of full-time station assignments secured by each state as the result of the action of the Commission in licensing stations under its General Order No. 40:

State.	Regional.	Clear channel.	Ltd. time.	Day.	Local.
Maine	1.00	....	..	..	1.00
N. Hamp.	.50	....	..	..	1.00
Vermont	....	....	..	..	1.00
Mass.	4.00	1.00	..	1	4.00
Conn.	1.50	.50	..	..	....
R. Island	1.00	....	..	..	2.00

State.	Regional.	Clear channel.	Ltd. time.	Day.	Local.
New York	11.00	4.20	3	5	11.00
N. Jersey	2.00	1.80	..	1	.50
Delaware	1.00	....	..	..	1.00
Maryland	2.00	.50	..	..	3.00
Dis. of Col.	2.00	....	..	1	....
Porto Rico	1.00	....	..	..	....
Virgin Isl.	....	....	..	..	....
Zone total	27.00	8.00	3	8	24.50

On the basis of population the State of New York is actually entitled to 42.2 per cent of the 8 "exclusive" channels available to the first zone, or 3.37 channels. The actual assignments under the allocation provided for in General Order No. 40 gave the State of New York the use of 4.2 "exclusive" channels. The four full-time assignments were made to the following stations:

Frequency.	Call letters.	Location.	Licensee.
660	WEAF	Bellmore, N. Y.	National Broadcasting Co.
760	WJZ	New York City.	Radio Corporation of America.
860	WABC	New York City	Atlantic Broadcasting Co.
1150	WHAM	Rochester, N. Y.	Stromberg-Carlson Tel. Mfg. Co.

Appellant's station WGY was not assigned an exclusive channel with unlimited time of operation. It was, however, assigned the use of the same channel it was then occupying (790 kc) with the restriction that its operation should not interfere with the other station (Station KGO) assigned to that channel. The channel of 790 kc, by General Order No. 40, was allocated to Zone Five and assigned to appellant's Station KGO at Oakland, California.

Because of the geographic separation between Station KGO and WGY the latter station may, under this assignment, operate until sunset at Oakland, California, without

possibility of interference. This is due to the fact
53 that in daylight hours the area within which a station may cause interference is greatly reduced. Daylight intervening between these two stations for practically three hours after sunset at Schenectady, New York, enables Station WGY under this assignment, to operate for three hours after sunset at Schenectady without interference with Station KGO at Oakland, California.

Station WGY was informed that the Commission would permit it to make whatever arrangements it desired with Station KGO with reference to division of time in the early evening hours so that WGY might continue in operation each day until 10 P. M.

Under the rules adopted by the Commission in General Order No. 37, and under further rules and regulations established by the Commission, ample opportunity is afforded each station dissatisfied with its assignment to apply to the Commission for modification of its assignment. These regulations require that the station so applying for midification specify a channel allocated to the zone in which it is located. Appellant refuses to comply with these rules, but instead, in its application filed October 4, 1928, requested the frequency of 790 kilocycles for unlimited operation. This channel, as previously stated, had been assigned to the Fifth Zone as an exclusive channel. Appellant knowingly refused to comply with the Commission's rules and regulations, with respect to the requirement that applications specify a definite frequency available to the applicant's zone.

By following the orderly procedure provided for by the Commission, appellant may have its right to a clear channel in the first zone passed upon by the Commission after a hearing in which a station of the first zone, which might be affected, would also have a full opportunity to be heard.

Appellant's application of October 4, 1928, for unlimited operation on a frequency assigned to the fifth zone raises no issue that may be determined in applicant's favor unless the regulations established by General Order No. 40 are wholly disregarded. These regulations being made in compliance with the mandate of Congress as contained
in the Davis Amendment had previously determined
54 the location of stations entitled to the use of this frequency. That appellant's refusal to apply for a

frequency within its zone was deliberate and not due to its unfamiliarity with the regulations of the Commission is apparent from the correspondence passing between the Commission and appellant. (Documents No. 101 to No. 112).

The record discloses that appellant's application dated January 14, 1928, was granted by the Commission on October 12, 1928. That the license issued thereunder does not permit an unlimited time of operation is due to limitations such as the Commission has no power to correct.

The Commission has not refused appellant a hearing but has done everything in its power to afford it a hearing that presents an issuable question.

Appellant has had the exclusive use of the frequency of 790 kc for a relatively short period of time, i. e., since July 31, 1927. Previous to that time it had shared the following frequencies with other stations as follows:

Date.	Frequency.	Wave length.	Shared with.
Feb. 4, 1922	833	360	All broadcasting stations.
Sept. 27, 1922	750	400	All Class B broadcasting stations.
May 21, 1923	790	380	Station W H A Z
Nov. 1, 1927	790	380	None.

Appellant has never exercised the broadcasting privilege except under governmental regulation. It has been operating under licenses granted by the Secretary of Commerce and the Federal Radio Commission. Such licenses have never been granted for a period to exceed three months.

As required by joint resolution of Congress of December 8, 1926, appellant has waived any right or any claim of right, as against the United States, to any wavelength, or the use of the ether in radio transmission, because of previous license to use the same or because of the use thereof.

55 *Grounds for Decision.*

1. *Commission's decision of October 12, 1928, on appellant's application for renewal of license, dated January 14,*

1928. This decision was made at a meeting of the Commission held on October 12, 1928, together with decisions on approximately 618 other applications for renewal of license on the part of all existing broadcasting stations in the United States, and a large number of applications for construction permits and for licenses in connection with new stations. The decision is set forth, together with the findings on which it is based, in the minutes for that meeting (Appellee's Document No. 95). It was preceded by tentative decisions on all these same applications, made on September 8, 1928, and recorded, together with the Commission's findings, in the minutes of the meeting of that date. (Appellee's Document No. 78).

Neither the final nor the tentative decision with respect to appellant's application was preceded by a formal hearing. No hearings were held by the Commission on any of the applications before it, whether they were for construction permits, licenses, or renewals of license, where the applications were *granted*. Under the Commission's interpretation of the law, an application is to be considered as granted, even though the frequency, amount of power, or hours of operation are different than those requested, and under such circumstances the Commission is not required to fix a time and place for hearing or to hold a formal hearing, in the absence of a specific application for modification of the new license. The Commission considers that it went beyond what was strictly required of it by law in making provision for the filing and hearing of applications for modification in advance of the issuance of licenses.

There having been no formal hearing there is no transcript of evidence to which reference can be made in support of the Commission's decision on appellant's application. The decision was not made without evidence or reasons, however. The evidence was that furnished over a long period of time by appellant's applications and answers to questionnaires, voluminous mail from listeners all over
the country as to the service rendered by appellant's
56 station, interviews with appellant's representatives
and with others having pertinent information, records of appellant's service from time to time as furnished by newspaper accounts, and from other sources. The Commission had the same sort of evidence with regard to the

six hundred other stations whose applications were before it. Having this evidence, the Commission sought to assign Station WGY and each other station in the country its proper-share of the available broadcasting facilities. The decision could not be made simply on the basis of the service rendered by Station WGY without consideration of the claims of other stations; their services, and the need thereof on the part of the listening public, had to be weighed and *compared*. Whatever privileges are granted to one station must necessarily be subtracted from those available for other stations. After careful study of the evidence before it the Commission made its new allocation. This was done by tentative action on September 8th, and final action on October 12th. Its decision with regard to appellant's application for renewal was that the application should be granted and that a renewal license should be issued to it for the same frequency and the same power which it had under its then-existing license, but with slightly reduced hours of operation.

The reasons for the Commission's decision, in addition to the evidence it had before it, are to be found in General Order No. 40 and in the application thereof. Under the rules and regulations incorporated in this order, eight the forty cleared channels provided for are assigned to the First Zone. The others are assigned to the other four zones, eight to a zone. Appellant's station is of such a character with respect to power capacity, and the region desired to be served by it is of such extent, that it can be accommodated only on a cleared channel. Because of incontrovertible physical laws, two such stations cannot operate simultaneously during evening hours on the same channel within the United States without causing fatal heterodyne interference. Because of the decreased interference range during daylight hours, two such stations can operate
57 simultaneously up until approximately the time of sunset at the station to the west, i. e., until the two stations are linked by darkness, if they are sufficiently far apart geographically. These "daylight" privileges have also been distributed by the Commission equally among the five zones.

On the basis of the evidence before it, and guided by the provisions of Section 5 of the amendatory act approved

March 28, 1928, the Commission was of the opinion that there were in the First Zone ten stations better entitled to positions on the eight cleared channels than WGY, six of them to full time operation, one to three-quarters time and another to one-quarter or the same channel, and two to one-half time each on the same channel. As a matter of fact WGY has a better assignment than the last three-mentioned stations.

On the basis of population alone, the State of New York was entitled to but 3.37 of the eight cleared channels. Because of equitable considerations, including the fact that New York City is the great population center of the zone and is also the center of program resources, the Commission actually allocated 4.25 of these channels to the State, 3.25 of them being to stations in New York City (WEAF, WJZ, WABC and WLWL) and one to a station in Rochester, N. Y. (WHAM). The other 3.75 channels were distributed among Springfield, Mass., Hartford, Conn., Newark, Atlantic City, and Baltimore. The Commission did not feel that any larger share of the channels could be given to the State.

The Commission, on the evidence before it, decided that of the New York stations, WHAM, WEAF, WJZ and WABC, all had superior claims to full time operation on a cleared channel to those of WGY. WLWL has only a quarter time and does not seriously affect the problem; it is, however, the station owned and operated by the Missionary Society of St. Paul, the Apostle, and has peculiar and, to the Commission, convincing claims to the limited hours which it enjoys on a cleared channel. WHAM at Rochester, N. Y., provides service for a large portion of western New York, not otherwise regularly served by a high-powered station. WEAF and WJZ at New York City are operated by the National Broadcasting Company, in which ap-
58 pellant is a controlling factor by reason of its stockholding; these two stations are the keys to the two chain networks known as the Blue and Red chains. WABC is the key station for the Columbia network, an independent organization. Without attempting to go into all the considerations and evidence which led to the Commission's action it is sufficient to point out again the fact that a station in New York City reaches a population tremendously

in excess of that reached by any station located elsewhere in the First Zone; it serves thickly inhabited areas in Connecticut, New Jersey, and even the Philadelphia region in the Second Zone. The population thus served is greater by much more than three times that of the Schenectady area.

Furthermore, appellant's station has not, for a considerable period last past, furnished any substantial amount of original programs. Its evening hours have been almost entirely devoted to the chain programs given by WEAF at New York City and given also by WHAM at Rochester. After 10 o'clock p. m., under the arrangement suggested by the Commission, WGY listeners can get exactly the same programs by tuning in on these or on other more distant chain stations; the service will not, naturally, be as dependable, but it will be as good as, or better than, is had by many other parts of the United States equally entitled to service. Schenectady and Albany also get service from other stations, such as the high-powered WBZ at Springfield, Mass., as may be seen by reference to the list of stations in the record (Appellee's Document No. 96).

Appellant's station has been given the next best thing to full time on a cleared channel. It has all the advantage of a cleared channel throughout daylight hours and in the evening up until 10 o'clock p. m. In addition, appellant's two other stations, KGO at Oakland, Cal., and KOA at Denver, Colo., have both been given full time operation on cleared channels. It can hardly be said that appellant has been harshly treated.

The Commission does not claim that its decisions on the applications before it are infallible. It has intended to have, and has provided for, hearings for all dissatisfied stations. Under its construction of the law, however, these hearings should be the result of a specific application from the dissatisfied party, so that the issues may be defined and other interested parties notified. Having, on the
59 basis of the evidence before it, found that certain stations in the First Zone are better entitled to positions on cleared channels than WGY, it does not propose, unless required by this Court, to deprive any of these stations of their privileges without a hearing at which evidence is produced and arguments advanced showing that

the Commission was in error and that WGY has better claims to such privileges.

2. *Commission's decision of October 12, 1928, denying appellant's application for modification dated October 4, 1928.* This application asked for full time operation on the frequency of 790 kc. with power of 150,000 watts. It did not ask for any frequency substantially equivalent to 790 kc. or for any frequency whatsoever other than 790 kc.

The application was denied without hearing because (1) it asked for full time operation on a frequency assigned to the Fifth Zone and not available to any station for full time operation in the First Zone, in violation of General Order No. 40, and (2) it asked for power of 150,000 watts, although under General Order Nos. 40 and 42 the maximum power that will be assigned to any broadcasting station for such use is 50,000 watts, 25,000 watts of which is on an experimental basis. The application on its face discloses, therefore, that what it seeks cannot be granted and a hearing is useless. The Commission construes Section 11 of the Radio Act of 1927 as requiring a hearing only when an application is in proper form and requests something which can be granted under the law and under the rules and regulations of the Commission; in other words, where the issue is reduced to the question as to whether the granting of the application will serve public interest, convenience or necessity. If the application is from a station in the First Zone and seeks a cleared channel, it must definitely specify the channel requested and the channel must be one of those assigned to the First Zone by sub-paragraph A of paragraph 4 of General Order No. 40.

Respectfully submitted,

FEDERAL RADIO COMMISSION.
IRA E. ROBINSON,
Chairman.

60 [Endorsed:] Nos. 4870, 4871. Court of Appeals, District of Columbia. General Electric Company, operating Station WGY, appellant, v. Federal Radio Commission, appellee, and People of the State of New York, appellants, v. Federal Radio Commission, appellee. Appellee's Statement of Facts and Grounds for Decision. Louis G. Caldwell, General Counsel, Federal Radio Com-

mission. Court of Appeals, District of Columbia. Filed Nov. 28, 1928. Henry W. Hodges, clerk.

61 In the Court of Appeals of the District of Columbia.

No. 4880.

GENERAL ELECTRIC COMPANY, Operating Station WGY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Statement of Facts and Grounds for Decision.

Preliminary Statement.

The Federal Radio Commission, appellee herein, files this Statement of Facts and Grounds for Decision under protest and saving and reserving all rights it may have with respect to certain motions heretofore filed with and now pending before this Court: (1) its motion to dismiss the appeal and (2) its motion to strike the notice of appeal and reasons therefor from the files.

Proceedings.

This is a proceeding under the Radio Act of 1927, approved February 23, 1927, and the amendment thereto approved March 28, 1928. It is before this Court by reason of a purported appeal from the action of the Federal Radio Commission and is brought under Section 16 of the Radio Act which provides for an appeal to the Court of Appeals of the District of Columbia from certain decisions of the Federal Radio Commission.

For the purpose of this statement, appellee assumes that the action of the appellee on October 12, 1928, granting a license to appellant is a decision upon an application within the meaning of Section 16 of the Radio Act, 1927

In a proceeding now before this Court, entitled General Electric Company, operating Station WGY, Appellant, versus Federal Radio Commission, Appellee, Appeal No. 4870,

appellee has heretofore filed certain papers and documents relating to said decision. Cause No. 4870 and the present proceeding involve the same parties and are based upon the same decision of the Federal Radio Commission and by reason of this fact appellee incorporates herein, by reference, and as if physically attached hereto, the following documents filed in Cause No. 4870: Appellee's Documents Nos. 1 to 104, inclusive, and 106 to 116, inclusive, and 119 to 120, inclusive.

Appellee further incorporates by reference all of that portion of its "statement in writing of the facts and grounds for its decision," heretofore filed in said Cause No. 4870, following the heading "Proceedings" to but not including the heading "Statement of Facts."

Statement of Facts.

Appellee further incorporates by reference all that portion of its said "statement in writing of facts and grounds for its decision" heretofore filed in said Cause No. 4870, following the heading "Statement of Facts," to but not including, the heading "Grounds for Decision."

Appellee in Cause No. 4870 made the following statement:

"Appellant has had the exclusive use of the frequency of 790 kc for a relatively short period of time, i. e., since July 31, 1927. Previous to that time it had shared the following frequencies with other stations as follows:

Date.	Frequency.	Wave length.	Shared with
Feb. 4, 1922	833	360	All broadcasting stations
Sept. 27, 1922	750	400	All class B broadcasting stations.
May 21, 1923	790	380	Station WHAZ
Nov. 1, 1927	790	380	None."

The records of the Federal Radio Commission show that appellant has never had the exclusive use of the frequency of 790 kc. On July 7, 1927, Station WCAJ, Nebraska Wesleyan University at Lincoln, Nebraska, began operating on this frequency under authority granted by this Com-
63 mission and continued to so operate under license until November 11, 1928. (Documents A1, A6, A7,

A8, filed herewith and Documents 60-68 filed in Cause No. 4870.)

Station KMMJ, the M. M. Johnson Company, Clay Center, Nebraska, also used this frequency from July 7, 1927, to October 31, 1927. (Documents A1, A2, A3.)

Station KMTR, KMTR Radio Corporation, Hollywood, California, operated on this frequency under license from April 29, 1927, to June 1, 1927. (Documents A9, A10, A11.)

Station WMBL, Benford's Radio Studios, Lakeland, Florida, operated on the frequency of 790 kc, under authority of the Commission from April 22, 1927, to June 1, 1927. (Document No. A4.)

Station WOAN at Lawrenceburg, Tennessee, used this frequency under authority of the Commission from April 22, 1927, to June 1, 1927. (Document No. A5.)

Grounds for Decision.

Appellee further incorporates by reference all that portion of its said statement in writing, filed in said Cause No. 4870, following the heading "Grounds for Decision."

If, however, the Commission be in error as to its construction of Section 11 of the Radio Act of 1927, and if that section, properly construed, requires an opportunity for hearing on an application for renewal of license before the Commission may decide to issue a new license differing with respect to frequency, power and hours of operation from the license sought to be renewed, the following additional grounds exist in support of the Commission's decision of October 12, 1928, on appellant's application for renewal dated January 14, 1928:

1. After and by reason of General Order No. 40, adopted by the Commission on August 30, 1928, and immediately thereafter promulgated to all broadcasting licensees,
64 including appellant, appellant's application for renewal could not be granted by the Commission, with or without hearing. The frequency authorized in appellant's then-existing license was 790 kc; under General Order No. 40 this frequency became a cleared channel available for full-time operation only to broadcasting stations in the Fifth Zone. Appellant having been notified and served with a copy of said General Order No. 40 on or immediately after September 1, 1928, it therefore became appellant's

duty, under appellant's construction of the law, to file a new application for license specifying a frequency available to broadcasting stations in the First Zone and suitable to appellant's station, if it desired to be heard on an application for full time on a cleared channel. Appellant not only failed to make such an application but, ignoring General Order No. 40, applied again for full-time operation on 790 kc by its application for modification dated October 4, 1928.

2. The Commission did provide for an opportunity for hearing in substance and in fact on appellant's application for renewal. On September 8, 1928, it set up and announced a tentative allocation on the basis of which hearings might be held. Such a structure was a necessary prerequisite to hearings with intelligible issues, so that the comparative merits of stations competing for similar assignments might be heard and decided. The procedure by which a hearing might be held was carefully explained in detail to applicant and to all others in the statement circulated on September 11, 1928. Forms were provided and appellant obtained these forms. Every issue in which appellant was interested could have been raised and heard by complying with the procedure. Appellant refused to comply with it.

3. If appellant is right in its construction of the law, then General Order No. 40 was itself a denial of appellant's application for renewal dated January 14, 1928.

Pursuant to Section 16 of the Radio Act of 1927, the Federal Radio Commission transmits herewith a certified copy
of its minutes of October 12, 1927, containing the
65 above decisions with respect to Station WGY, owned
and operated by the General Electric Company. Transmitted herewith are true copies of certain documents on file with the Federal Radio Commission pertaining to this proceeding, the same being numbered A1 to A11, inclusive. Appellee incorporates by reference, the following documents filed with this Court in Cause No. 4870, entitled General Electric Company, operating Station WGY, versus Federal Radio Commission: Appellee's Documents Nos. 1 to 104, inclusive, 106 to 116, inclusive, 119 to 120, inclusive.

Respectfully submitted,

FEDERAL RADIO COMMISSION.
IRA E. ROBINSON,
Chairman.

66 In the Court of Appeals of the District of Columbia.

No. 4880.

GENERAL ELECTRIC COMPANY, Operating Station WGY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Notice.

December 19, 1928.

To Frank G. Hogan, Esq.,
Attorney for General Electric Co., appellant:

Please take notice that on the above date the Federal Radio Commission filed with the Court of Appeals of the District of Columbia its Statement of Facts and Grounds for Decision in the above entitled cause.

LOUIS G. CALDWELL,
Attorney for Federal Radio Commission.

Acknowledgment of Service.

Receipt of the above notice together with one copy of the above statement of the Federal Radio Commission is acknowledged, this 19th day of December, 1928.

FRANK J. HOGAN,
Attorney for General Electric Company.

67 [Endorsed:] In the Court of Appeals of the District of Columbia. No. 4880. General Electric Company, operating Station WGY, Appellant, v. Federal Radio Commission, Appellee. Statement of Facts and Grounds for Decision. Federal Radio Commission, Louis G. Caldwell, General Counsel. Court of Appeals, District of Columbia. Filed Dec. 19, 1928. Henry W. Hodges, Clerk.

The General Electric Company filed its first application for the operation of its station, W G Y, with the Bureau of Navigation, Department of Commerce, said application being dated January 23, 1922. Said application is as follows:

68 Received Jan. 25, 1922, Radio Service, N. Y. Custom House.

Received Jan. 23, 1922, Radio Service, N. Y. Custom House.

Applicant's Description of Apparatus.

Department of Commerce, Bureau of Navigation, Radio Service.

WGY

The following form of description of apparatus will be filled out in duplicate and forwarded to the radio inspector by each applicant for a license for apparatus for radio communication of any class (ship or land), except amateur stations (general or restricted) for which Form 762 is provided. The inspector, if necessary, will then arrange for an inspection of the station, or, when feasible, the inspector may accompany the applicant and make the inspection during the filling of this form.

Where the form calls for a statement of details of apparatus with which the station is not equipped, the applicant will please draw a line through the space provided for the appropriate answer.

The information is desired primarily as the basis of the description of the apparatus to be inserted in the license, but many of the details are desired to facilitate the classification and particularly the inspection of stations, and will not, of course, be incorporated in the license. This form when filled will not be open to public inspection.

NOTICE.—This Form Must be Submitted in Duplicate to the Proper Radio Inspector.

General Specifications of Station.

Name of applicant:[1] General Electric Company.

Address:[2] Schenectady.

A citizen of the State of or a company incorporated in the State of New York.

Name and address of *owner* of radio apparatus: Same as above.

If ship station—Name of ship: ——. Owner of ship: ——. Type of vessel: ——. Official number: ——. International signal code letters: ——. Home port (where permanent document issues): ——. Average speed of vessel (nautical miles): ——. Number of persons in crew: ——. Number of passengers vessel is licensed to carry: ——. Is vessel subject to the Act of June 24, 1910, as amended by the Act of July 23, 1912? ——.

If land station—Coast or inland? Inland. Location—State: New York. County: Schenectady. City or town: Schenectady. Street: River Road. No.: 1. Exact latitude, North: 42°, 50′, 00″; Longitude, West: 73° 54′ 30″.

Class of license desired (see regulations): Broadcasting. Nature of service: Broadcasting.

Specific hours open to public service: ——.

If limited station—Corresponds only with (state names of land stations, names of ships or lines of ships): ——.

Transformer input (normal conditions): 1½ K. W.

Approximate day-transmitting range (nautical miles) with average ship: ——; with similar land stations: 200 miles.

Primary Source of Power Supply.

Engine—Type and horsepower: ——.

Electric power—Source and available K. W.: Factory Mains. Is power continuously available? Yes.

Ship or Coast Charges.

(State class of service, such as North and South American or Transoceanic.)

—— per word: ——; minimum per radiogram: ——.
—— per word: ——; minimum per radiogram: ——.
—— per word: ——; minimum per radiogram: ——.

Relay charges: ——.

Make and type of radio system to be used: General Electric vacuum tube telephone transmitter.

Type of spark gap (plain, rotary synchronous, quenched, etc.): ——.

Approximate spark frequency (pitch of note) per second: ——.

Type and make of receiving apparatus (conductive or inductive coupling, etc.): Inductive.

Type of detector: Vacuum tube.

Wave length range of receiving system: From 150 meters to 300 meters.

Antenna.

Type of antenna (T, ⅂, umbrella, fan, etc.): Multiple Tuned.

Masts—Number: 2. Steel or wood? Steel. Other supports: None.

Essential dimensions—Maximum height above ground or water: 110 ft., above counterpoise. Length of horizontal part: 300 ft. Length of vertical part (including lead-in): 100 ft. Total length measured from apparatus: 115 ft. Length of ground connection: 15 ft. Fundamental wave length: 275 meters.

Other essential dimensions: 3 multiple tuning points.

Number of wires: 2. Size and kind of wire used: 7 #18. Spacing between wires: 20′.

Insulators—Material: Porcelain. Sizes: Diam. 4½″x30″ long with 15″ shield. Location: One at each bridle.

Ground connection—Type: Counterpoise.

Lightning protective switch—Type: Outdoor disconnecting. Location: Outside Bldg. How operated: Manually.

Remarks: ——.

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[1] Person, company, or corporation controlling and operating station and responsible, under the law, for operation and radio accounts.

[2] Show address of office to which should be sent communications concerning radio accounts and operation of station.

69 Auxiliary Apparatus (If Ship Stations).

Type and make: ——. Wave length: —— meters.

Source of power: ——. Normal day range (nautical miles) with ships: ——.

Plain aerial or coupled circuits? ——. Condenser in aerial circuit? ——.

Normal Wave Length and Other Wave Lengths Applied For.

(Underscore Normal.)

See letter attached.

Sending Wave Length.	Antenna Current.	Logarithmic Decrement.
... meters	.....	.....
360 meters	3 amps. per le g.	.....
... meters	.....	.....
... meters	.....	.....

If public service coast station, the station insures rapid exchange with land wire stations as follows:

Company: ——. Place: ——. By direct wire or telephone? ——.

Company: ——. Place: ——. By direct wire or telephone?

Number of operators required—First grade: ——. Second grade: ——. Others: ——.

Power Supply to Transmitter.

(*a*) Motor generator:

Motor.	Generator.
Voltage—A. C. or D. C. and cycles: AC-60.	Volts (rated) and cycles: 220-60.
H. P. (rated): 30 k. v. a.	K. W. (rated): ——.
Speed: 1750.	K. V. A. (rated): 30 k. v. a.
Location: On floor below transmitter.	
Remarks: ——.	

(b) Power-measuring instruments: Plate ammeter 2 amps.

Type, make, range, etc.: Line voltmeter 250 v. Filament Voltmeter 30 v. (All G. E. make)

Motor starter—Direct or distant control? Distant. Are motor field rheostat and generator field rheostat provided? Yes.

(*c*) Storage battery:
Make: ——. Type: ——.
Capacity (ampere hours): ——. Number of cells: ——. Location: ——.
(*d*) Internal-combustion engine:
Make: ——. Type: ——.
K. W. of generator (rated): ——. Location: ——.

Radio Apparatus.

(*a*) Transmitter:
Is proper means provided for reducing the range of the station as required by the London Convention? Yes.
Condenser in aerial circuit for No. meters, —— meters.
Coupling—Inductive or conductive? Inductive. Type of primary condenser: No condenser.
(*b*) Receiver:
Is secondary circuit tuned or untuned? Tuned. Are complete duplicate receivers installed? No.
Are tuning positions for 300 meters and 600 meters plainly marked on apparatus? Yes.
Method used for disconnecting receiver when transmitting (hand switch or automatic "break"): Hand switch.
Was the station in actual operation on or prior to August 13, 1912? No.
Signature of applicant: GENERAL ELECTRIC COMPANY,
By [1]E. P. EDWARDS,
Mgr. Radio Dept.

[1] For signature of an *official*, if the applicant is a company or corporation.

Instructions to Radio Inspectors.

Send out this form in triplicate—one for the applicant's files if he desires it. When received back, fill in the following; preserve one copy for your records and forward the original to the Commissioner of Navigation with report and recommendation.
Received by (inspector): Arthur Batcheller, New York. Date: Jan. 25-22.
Date of inspection of station: ——. Inspected by: ——.

Report and Recommendation.

Recommended provisional limited commercial license be issued for broadcasting service only, and on a wave length of 360 meters.

ARTHUR BATCHELLER,
U. S. Radio Inspector.

The license, when approved by the Secretary of Commerce, will be forwarded to the inspector for delivery to the applicant. The inspector will then fill in from the license the following on his file copy:

Class of license: ——. Serial No.: ——. Date of delivery to applicant: ——.

Pursuant to this application the following license was issued to the General Electric Company on February 4, 1922:

70 Provisional.

Copy.

No. 285.

License for Land Radio Station.

Class 2—Limited Commercial.

Department of Commerce,

Bureau of Navigation

Radio Service

Pursuant to the act to regulate radio communication, approved August 13, 1912, General Electric Company, a citizen of the State of ——, a company incorporated under the laws of the State of New York, having applied therefor, is hereby granted by the Secretary of Commerce for a period of three months on and subject to the restrictions and conditions hereinafter stated and revocable for cause by him, this License to use or operate the apparatus for radio communication (identified on the schedule hereinafter) for the

purpose of transmitting to and receiving from ship stations and other land stations public correspondence, Government and service correspondence, and distress signals and messages, at rates of compensation not in excess of those fixed by the international agreement to which the Government of the United States has adhered, which have been submitted to and approved by the Secretary of Commerce, as included in the schedule hereinafter, or for the purpose of conducting experiments for the development of the science of radio communication or the apparatus pertaining thereto, to carry on special tests, using any amount of power or any wave lengths, at such hours and under such conditions as will insure the least interference with the sending or receipt of commercial or Government radiograms, of distress signals and radiograms, or with the work of other stations, the purpose of the station being designated by the classification at the head of this License.

2. Public correspondence or limited commercial correspondence authorized by this License shall be limited to certain stations, ships or lines of ships named hereinafter, which designation is authorized in view of the nature of the service and is independent of the radio system employed.

3. The use or operation of apparatus for radio communication pursuant to this License shall be subject also to the articles and regulations established by the International Radiotelegraphic Convention, ratified by the Senate of the United States and caused to be made public by the President, and shall be subject also to such regulations as may be established from time to time by authority of subsequent acts and treaties of the United States, in so far as they apply to the class of station indicated by this License.

4. The authority conferred by this License is sub-
71 ject to the provisions of the act of February 4, 1887, entitled "An Act to regulate commerce," as amended by the act of June 18, 1910, so far as the Licensee may be within the operation of said act, and except as provided in the act of August 13, 1912, or in the International Radiotelegraphic Convention and regulations made part thereof, the station shall transmit all messages offered by those who tender lawful rates on equal terms without discrimination, whether as regards rates, order of transmission, or otherwise.

5. The Licensee shall render to the Secretary of Commerce such accounts as the Secretary of Commerce shall direct in respect of all charges due or payable under the International Radiotelegraphic Convention in respect of messages exchanged between the station hereby licensed and other stations and shall pay to the Secretary of Commerce, at such times and in such manner as the Secretary of Commerce shall direct, all sums which shall be due from the Licensee under such accounts.

6. The apparatus shall at all times while in use and operation be in charge or under the supervision of a person or persons licensed for that purpose by the Secretary of Commerce, and the operator of the apparatus shall not willfully or maliciously interfere with any other radio communication.

7. The station shall give absolute priority to signals and radiograms relating to ships in distress, shall cease all sending on hearing a distress signal; and, except when engaged in answering or aiding the ship in distress, shall refrain from sending until all signals and radiograms relating thereto are completed.

8. The station shall use the minimum amount of energy necessary to carry out any communication desired, except in case of signals or radiograms relating to vessels in distress.

9. The station shall not use a transmitter during the first 15 minutes of each hour, local standard time, except for distress signals, whenever the Secretary of Commerce by notice in writing shall require it to observe a division of time, pursuant to the Twelfth Regulation of the act of August 13, 1912.

10. The President of the United States in time of war or public peril or disaster is authorized by law to close the station and cause the removal therefrom of all radio apparatus or may authorize the use or control of the station or apparatus by any department of the Government upon just compensation to the owners.

11. The Secretary of Commerce and Collectors of Customs or other officers of the Government authorized by him may at all reasonable times enter upon the station for the purpose of inspecting and may inspect any apparatus for

radio communication of such station and the operation and operators of such apparatus.

12. The apparatus shall not be altered or modified in respect of any of the particulars mentioned in the following schedule, except with the approval of the Secretary of Commerce.

72 Schedule of Station and Apparatus.

Name of owner, General Electric Company.

Location: State, New York; County, Schenectady.

City or town, Schenectady; Street, River Road; No. 1.

Geographical location: Latitude, N. 43° 50′ —″; Longitude, W. 73° 54′ 30″.

This station is licensed for communication only with the following land station ships, or lines of ships:

This station is licensed for broadcasting of music and like matter only, on the wave length of 360 meters.

Should this station interfere with another station performing similar service or another station performing similar service interfere with this station it may be necessary to require a division of time between the stations affected.

One commercial second class operator or higher required.

Specific hours during which the station may / must be open to service (local standard time): ——.

Power: Transformer input, 1500 Watts.

Normal day range in nautical miles, 200 miles.

Time and method, if any, of sending time signals and hydrographic and meteorological radiograms: ——.

Call letters, WGY.

——; Coast charges: per word ——, minimum per radiogram ——.

——; Coast charges: per word ——, minimum per radiogram ——.

——; Coast charges: per word ——, minimum per radiogram ——.

Radiotelegraphic system employed, General Electric VT telephone.

Characteristics of transmitting system:

Type of spark gap, none.

Approximate spark frequency, ——.

Wave length range of receiving system: From 150 meters to 3000 meters.

Antenna: Number of masts 2, Height, ——.

Type of aerial, Multiple tuned T.

Wires: Number, 2; Size and kind, 7/18 PB.

Essential dimensions: Maximum height above water, 110 feet; Length of horizontal part, 3000 feet; Length of vertical part, 100 feet; Total length measured from apparatus, 115 feet; Length of ground connection, 15 feet; Fundamental wave length 275 meters.

Wave Lengths.

The normal sending and receiving wave length shall be 360 meters.

If the station be classified as a coast station it shall be prepared to transmit or relay distress calls or mes-
73 sages using the distress wave length as provided by the International Radiotelegraphic Convention in force.

In view of special conditions the station is authorized to use for communication exclusively with stations licensed by the United States the following additional wave lengths under 600 or over 1,600 meters:

Meters, 360; Meters, ——; Meters, ——; Meters, ——;

The energy, if radiated by the transmitter in two or more wave lengths as indicated by a sensitive wave meter, shall not in any one of the lesser waves exceed 10 per cent of that in the greatest; and the logarithmic decrement per complete oscillation in the wave trains shall not exceed two-tenths, except when sending signals or messages relating to vessels in distress.

Sending wave length.	Antenna current (amperes).	Logarithmic decrement.	Reading of wave meter indicating instrument.* Principal wave.	Wave next in energy.
300 meters.....	.....	.....	.....	.....
600 meters.....	.....	.....	.....	.....
360 meters.....	Not ascertained.			
meters.....	360 meters for broadcasting music and like matter only.			
meters.....	.....	.....	.....	.....
meters.....	.....	.....	.....	.....

*Type of indicating instrument, ——.

The station insures rapid exchange with land wire stations at

.....

.....

(Company) (Location telegraph office)

.....

(Company) (Location telegraph office)

in the following manner: ——.

Satisfactory proof has been furnished that the station was actually operating August 13, 1912.

This License will expire on the 3rd day of May, 1922.

S. W. STRATTON,
Acting Secretary of Commerce.

[Seal of Department of Commerce.]

D. B. CARSON,
Commissioner of Navigation.

Washington, D. C., February 4, 1922.

Inspections.

Date.	Inspector.	Remarks.
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

73½ The following is an agreed statement of the licenses which appear here in the record and which issued to the General Electric Company, Station W G Y, by the Department of Commerce, pursuant to applications made by the General Electric Company. This statement indicates the date of each license, the duration of each license and the power, wave length and class of service licensed. These licenses were issued under the authority of the Radio Act of 1912, and were prior to the enactment of the Radio Act of 1927.

Date of license.	Class of service.	Power (watts).	Wave length.	Duration of license.
February 4, 1922.	Limited Commercial	1500	360 meters	May 3, 1922
April 24, 1922.	Limited Commercial	1500	300 meters 600 360	July 23, 1922
June 19, 1922.	Limited Commercial	1500	300 meters 600 360 485	September 18, 1922
September 19, 1922.	Limited Commercial	1500	300 meters 600 360 485	December 18, 1922
September 27, 1922.	Class B, Broadcasting.....	1000	400 meters 485	December 26, 1922
December 27, 1922.	Class B, Broadcasting.....	1000	400 meters 485	March 26, 1923
March 17, 1923.	Class B, Broadcasting.....	1000	400 meters 485	June 16, 1923
May 21, 1923.	Class B, Broadcasting.....	1000	300 meters 600 380	August 20, 1923

August	21, 1923.	Broadcasting	1000	300	meters	November	20, 1923
		Development		600			
				380			
November	15, 1923.	Broadcasting	1000	300	meters	February	14, 1924
		Development		600			
				380			
February	11, 1924.	Broadcasting	1000	300	meters	May	10, 1924
		Development		600			
				380			
May	1, 1924.	Broadcasting	1000	300	meters	July	30, 1924
		Development					
July	18, 1924.	Broadcasting	1000	300		October	17, 1924
		Development		600			
				380			
October	9, 1924.	Broadcasting	1000	300		January	8, 1925
		Development		600			
				380			
April	24, 1925.	Broadcasting	2000	600		July	23, 1925
		Development		379.5			
July	27, 1925.	Broadcasting	2000 to	600		October	26, 1925
		Development	5000	379.5			

Date of license.	Class of service.	Power (watts).	Wave length.	Duration of license.
October 26, 1925.	Broadcasting	2000 to 600		January 25, 1926
	Development	5000	379.5	
January 28, 1926.	Broadcasting	2000 to 600		April 27, 1926
	Development	5000	379.5	
July 19, 1926.	Broadcasting	....	379.5	3 months
	Development			
October 16, 1926.	Broadcasting	....	379.5	3 months
	Development			
January 22, 1927.	Broadcasting	....	379.5	3 months
	Development			

Copies of the applications and licenses referred to above were filed by the Federal Radio Commission with the clerk of this court and are documents 1 to 41 inclusive, and 44 and 45 of the record in this case.

On the following indicated dates the General Electric Company executed the following waivers:

74 No. 42.

Place: Schenectady, New York,
Navigation. Date: January 17, 1927.

1927, Jan. 19, AM. 8.59.

As required by the Joint Resolution of Congress approved December 8, 1926, and as a part of the application for license for a WGY Broadcasting radio station at
Class of station
Schenectady, New York hereto attached, the applicant
Location of station
hereby waives any right or any claim of right, as against the United States, to any wavelength, or to the use of the ether in radio transmission, because of previous license to use the same or because of the use thereof.

Signature: GENERAL ELECTRIC COMPANY,
By M. F. WESTOVER,
Secretary.

75 No. 43.

Place: Schenectady, New York,
Date: January 10, 1927.

As required by the Joint Resolution of Congress approved December 8, 1926, and as a part of the application for license for a WGY Broadcasting radio station at
Class of station
Schenectady, New York hereto attached, the applicant
Location of station
hereby waives any right or any claim of right, as against the United States, to any wavelength, or to the use of the ether in radio transmission, because of previous license to use the same or because of the use thereof.

Signature: GENERAL ELECTRIC COMPANY,
By W. W. TRENCH,
Asst. Secretary.

The foregoing waiver is signed under protest and in executing the same, the applicant expressly reserves all rights.

GENERAL ELECTRIC COMPANY,
By W. W. TRENCH,
Asst. Secretary.

Received Jan. 11, 1927, 9 A. M., Radio Office, New York, N. Y.

A bulletin of the Department of Commerce dated March 1, 1922, shows that the General Electric Company shared a wave length of 360 meters with 66 other stations. (R. Doc. 47).

76 Federal Radio Commission, No. 47.

Copy.

Radio Service Bulletin.

Issued Monthly by Bureau of Navigation, Department of Commerce.

Washington, March 1, 1922—No. 59.

Pages 13 and 14.

List of Stations Broadcasting Market or Weather Reports (485 *Meters*) *and Music, Concerts, Lectures, etc.* (360 Meters), (March 10, 1922).

Owner of station.	Location of station.	Wave lengths.	Call signal.
General Electric Co.,	Schenectady, N. Y.	360	WGY

(together with 66 other stations.)

A bulletin issued by the Department of Commerce, dated June 30, 1923, shows on page 27 thereof that Station W G Y of the General Electric Company, and Station W H A Z of the Rensselaer Polytechnic Institute were at that time operating on a frequency of 380 meters. (R. Doc. 46)

77 Federal Radio Commission, No. 46.

Copy.

Department of Commerce, Bureau of Navigation, Radio Service.

Commercial and Government Radio Stations of the United States.

Edition June 30, 1923.

Page 27.

Stations Broadcasting Market or Weather Reports, Music Concerts, Lectures, etc.

Call signal.	Owner of station.	Location of station.	Power.	Wave length.	Frequency.
WGY..	General Electric Co..	Schenectady, N. Y..	1000	380	790
WHAZ.	Rensselaer Polytechnic Institute.	Troy, N. Y..... ..	500	380	790

On April 5, 1927, the Federal Radio Commission issued its General Order No. 5 as follows: (R. Doc. 48)

78 Federal Radio Commission, No. 48.

3.

General Order No. 5.

April 5, 1927.

Extension of Broadcast Licenses.

On Sunday April 24, at 11:59 P. M., terminates the period of sixty days during which, under Section 40 of the Radio Act of 1927, no holder of a license or an extension thereof issued by the Secretary of Commerce under the Act of August 13, 1912, is subject to the penalties provided in the Radio Act of 1927 for operating a station without a license.

The Federal Radio Commission will issue a temporary permit to operate a radio broadcasting station, good only until final action is taken by the Commision on the application for license, to each holder of a license or an extension thereof from the Secretary of Commerce under the Act of August 13, 1912, whose application for a license

under the Radio Act of 1927 has been received by the Federal Radio Commission on or before April 24, 1927, and such temporary permit shall, until withdrawn, be considered as having the force and effect of a license in so far as the penalties provided in the Radio Act of 1927 are concerned.

After April 24, 1927, any person operating a radio broadcasting station otherwise than under the authority of such a temporary permit or a license issued by the Federal Radio Commission will be deemed by the Commission to be operating a broadcasting station without a license.

On April 14, 1927, the General Electric Company made the following application for a radio station license: (R. Doc. 49)

79 Federal Radio Commission, No. 49.

Copy.

Radio Division, 1927 Apr. AM 9 56.

Official No. 264.

Form No. 1.

United States of America, Federal Radio Commission.

Application for Radio Station License (Other Than Ship and Amateur).

(Submit in duplicate to District Supervisor of Radio. Swear to one copy.)

To the Federal Radio Commission:

1. Name of applicant: General Electric Company.
2. Post office address: State, New York; City, Schenectady; Street, River Road; Number, 1.
3. Citizenship: ——.
4. If a corporation, company, or association:

(*a*) Organized under laws of State of New York.

(*b*) May one-fifth, or more, of capital stock be voted by an alien or his representative or by a foreign government or the representative thereof? No.

(*c*) State name and position of any director or officer who is an alien: None.

(*d*) If applicant is a subsidiary, state name and address of parent company: No.

5. Is the applicant the representative of an alien or foreign government? No.

6. Has the applicant, since February 23, 1927, been found guilty by any Federal Court of unlawfully monopolizing, or attempting to unlawfully monopolize, radio communication through control of manufacture or sale of radio apparatus, exclusive traffic arrangements, or any other means, or by unfair methods of competition? No.

7. Description of transmitting apparatus:

(*a*) Spark apparatus: Make, ——; Type, ——; Input power to transformer, ——.

(b) Arc apparatus: Make, ——; Type, ——; Power, ——.

(*c*) Tube apparatus: Make, General Electric; Type, Special radio telephone; Output power of oscillator or amplifier tube, Approximately 100 kilowatts; C. W., I. C. W., or phone? Phone; Electron tubes, number of, Five
80 type HT-1; Oscillators: Number of 2 type HT-1; Plate current, 11 amperes; Plate voltage, 12,500 volts; Modulators: Number of, 3 type HT-1; Plate current, 10½ amperes; Plate voltage, 12,500 volts; Filament voltage, 33 volts; Filament current, 235 amperes each.

8. Location of transmitter: State, New York; County, Schenectady; City or town, South Schenectady; Street, Mariaville Road; No., —.

9. Was station constructed or was the construction of the station continued after February 23, 1927? No.

10. The class of license requested to be issued to the applicant is Broadcasting (Broadcasting, point to point public or private, coastal, experimental).

11. Time, wave length or frequency, and power requested are as follows:

(*a*) Time (Specify the days of the week and the hours): It is believed that it will be in the public interest *of* permit WGY to operate at any time day or night, and full time is requested.

(*b*) Wave length: 379.5 meters (frequency of 790 kilocycles).

(*c*) Maximum power: 200 watts.

12. If broadcasting station:

(*a*) During the last preceding year—

(1) What wave lengths have been used? 379.5 meters.

(2) What power output has been employed? 56 kilowatts.

(3) What days of the week and at what hours did the station regularly operate during the year?

Sunday—10:30 A. M. until noon, 3 P. M. until 6 P. M., 7:30 P. M. until 11 P. M.

Monday—11:55 A. M. until 12:40 P. M., 2 P. M. until 3 P. M., 6 P. M. until 7:30 P. M.

Tuesday—11:55 A. M. until 12:40 P. M., 2 P. M. until 3 P. M., 6 P. M. until 11:30 P. M.

81 Wednesday—11:55 A. M. until 12:40 P. M., 6 P. M. until 10:30 P. M.

Thursday—11:55 A. M. until 12:40 P. M., 2 P. M. until 3 P. M., 6 P. M. until 12:30 A. M.

Friday—11:55 A. M. until 12:40 P. M., 2 P. M. until 3 P. M., 6 P. M. until 11:30 P. M.

Saturday—11:55 A. M. until 12:40 P. M., 6 P. M. until 12 P. M.

In addition to the above regular schedule, there were many special schedules for football, baseball, politics, etc.

(4) What was the total number of hours the station operated during the year? 2171 hours, 34 minutes.

(5) Was the station connected by land wires to any other station? Yes. Connection regularly to four stations, one each in New York City, Syracuse, Rochester & Buffalo.

(*b*) What service is proposed to be rendered? It is proposed to continue rendering the best broadcasting service, technically and generally, which the state of the art will admit. This will now include weather, markets, farms and stock reports; church services of all denominations desiring to broadcast; agricultural programs; political and governmental addresses; and local musical programs in addition to the National Broadcasting Company's net work program from New York City and elsewhere.

(*c*) Why will the operation of the station be in the public convenience, interest, and necessity? The population within 100 miles of Schenectady exceeds 1,400,000. This community including Albany (New York State capital),

Troy, Amsterdam, Utica, and many villages and rural sections, has depended almost entirely on WGY during the past five years for radio programs. The New York City, Boston, Springfield and Buffalo stations are not well received in this vicinity. Many more distant listeners have depended on WGY for a comparatively reliable program source. Public interest has been clearly indicated in listeners' letters commenting on WGY's services in broadcasting political and educational talks, police reports, music and entertainment of varied character so selected that they would fill the needs of our comparatively large rural audience which is especially dependent on radio during leisure hours. WGY has the resources of the research laboratories of the General Electric Company and is used as a developmental station for testing new inventions and ideas. Among the major improvements developed in connection with WGY are: higher powered transmitters; large vacuum tubes; condenser microphones; accurate maintenance of assigned frequency (WGY is the oldest Bureau of Standards standard frequency station); short wave developmental broadcasting including a 32.77 meter, a 26.8 meter, and a 22 meter transmitter operating on intermittently regular schedules; development of means for improving audio frequency characteristics bettering the quality of broadcasting; antenna design. Thus, WGY has assisted in designing transmitters for other stations desirous of taking advantage of current developments. It is believed that because of its part in the development of the radio art and its service to broadcast listeners, the WGY station activities could not be discontinued without imposing a real public hardship.

(*d*) Location of studios: The main concert studio and auxilliary speaker's studio with waiting and control rooms are at Schenectady in a new International General Electric building located within one half mile of the railroad station and accessible to all parts of the city through street car service passing the door. Wire connections bring programs from four hotels in Schenectady and Albany, 18 different churches, one theatre, the State Capitol, the State Armory and several halls. In addition, WGY takes programs from Buffalo, Rochester, Syracuse, Ilion and Utica and regularly sends programs to associated stations in Syracuse, Rochester and Buffalo.

(*e*) Will station be connected by land wires to other stations? Yes.

82 (*f*) Will the applicant sell time? Yes to some extent.

(*g*) If applicant does not propose to sell time, how will station be supported? By the General Electric Company.

(*h*) State minimum number of hours station will be operated during each quarter: Approximately 500 hours.

13. If point to point station, state names of stations with whom it is proposed to communicate: ——.

14. If coastal public-service station, state hours during which the station will be open to public service and the minimum and other rates: ——.

15. The applicant waives any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a radio station license in accordance with this application.

Dated this 14th day of April, 1927.

GENERAL ELECTRIC COMPANY,
Applicant.

By W. W. FRENCH,
Asst. Secretary.

STATE OF NEW YORK,
County of Schenectady, ss:

W. W. French, being first duly sworn, upon his oath deposes and says that he is the Assistant Secretary of General Electric Co. (If applicant is not an individual, insert "agent of") above-named applicant and that the facts stated in the foregoing application are true of his own knowledge.

W. W. FRENCH.

Subscribed and sworn to before me this 14th day of April, 19—.

ARTHUR WILLEY,
Notary Public.

Radio Supervisor's Report.

April 16, 1927.

Application received: U. S. Supervisor of Radio, Department of Commerce, Received Apr. 16, 1927, New York, N. Y.
Remarks: Forwarded for action.

HARRY L. BOGARDUS,
Actg. U. S. Supervisor of Radio.

On April 21, 1927, the Federal Radio Commission transmitted the following letter, authorizing the General Electric Company to operate under the conditions stated therein. (R. Doc. 50)

83 Federal Radio Commission, No. 50.

Copy.

Federal Radio Commission, Washington, D. C.

Commissioners: Ira E. Robinson, Chairman; Eugene O. Sykes, Vice Chairman; Orestes H. Caldwell, Sam Pickard, Harold A. Lafount. Carl H. Butman, Secretary.

April 21, 1927.

General Electric Company,
1 River Road,
Schenectady, N. Y.

SIR:

Your application for the renewal of your radio broadcasting station license is at hand. Pending final action on the same, you are hereby authorized to operate your station in accordance with the radio law, approved February 23, 1927, using a power output of 56,000 watts and a frequency of 790 kilocycles (379.5 meters) until further orders are received by you from this Commission.

Until a more definite method of measurement is adopted the power output will be taken as one-half the power (volt-amperes) in the plate circuit of the oscilator, or in the plate circuit of the power amplifier tube if one is used.

This extension is not to be considered as a finding that your operation is in the public interest, convenience, or necessity.

This will be determined only after full consideration of the facts.

FEDERAL RADIO COMMISSION.

——— ———,

Chairman.

On June 1, 1927, the following license was issued to Station W G Y: (R. Doc. 51)

84 Federal Radio Commission, No. 51.

Copy.

Form No. 2.

Official No. 264.

United States of America, Federal Radio Commission.

Radio Station License (*Other Than Ship*).

Class: Broadcasting. Call Letters: WGY.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, General Electric Company is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending July 31, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of New York, County of

Schenectady, City or town of South Schenectady, Mariaville Road, Street number —, and is described as follows:

General Electric V. T. Telephone.

85 The nature of the service authorized to be rendered under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.

Power: Output 30,000 watts.

Call letters: WGY.

Time of operation: Shares time with station WHAZ.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this first day of June, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,

By —— ——,

Chairman.

MS.

On May 21 and May 28, 1927, the Commission issued the following General Orders: (R. Docs. 52 and 53)

86 Federal Radio Commission, No. 52.

General Order No. 11.

May 21, 1927.

The Federal Radio Commission hereby orders that all temporary permits to operate radio broadcasting stations under the terms of the Radio Act of 1927 shall terminate at three o'clock, local standard time, on the morning of Wednesday, June 1, 1927, and that thereafter all radio broadcasting stations subject to the provisions of the Radio Act of 1927 shall be operated solely in accordance

with the provisions of the licenses issued as of June 1, 1927, by the Federal Radio Commission.

* * * * * * *

The new licenses are all for sixty days, during which period the new allocations can be tested by actual practice. The law provides that any broadcaster who is dissatisfied with his allocation may have a public hearing before the Commission, and at such a hearing his claim for a specific frequency or power will be considered in all its relations.

The Commission recognizes that no scheme of re-allocation which does not at the very outset eliminate at least four hundred broadcasting stations can possibly put an end to interference. Accordingly, it regards the new allocations, not as creating in any sense an ideal broadcasting situation, but as providing for the first time a sound basis for radio service to the listener. With the cooperation of the public and the broadcasters, the Commission believes that it will be possible to improve conditions progressively by an orderly process of actual experience.

Until such experience has been gained, both the listeners and the broadcasters are urged to exercise patience. The listener will, of necessity, have to "re-log" his receiving set, and may find considerable difficulty in locating all the stations he desires to hear. The broadcasters will doubtless find that many of their listeners are at first somewhat bewildered by the changes in frequencies. It is the belief of the Commission, however, that within a very few weeks the material reduction of local or regional interference, the re-distribution of frequencies so as to clear most of the broadcasting channels, and the decrease of power for stations in the residential districts, will combine to render radio reception in general very much better than it has been in a long time.

Special attention is called to the fact that the Commission has no unused frequencies to allocate. Every broadcasting channel is filled to its apparent capacity, and in some cases possibly over-crowded. Accordingly, any listener who wants a different allocation of frequency or power for his favorite station, or any broadcaster who seeks increased facilities for service, must be prepared to

show specifically what other station should be required to give up its frequency, or have its power reduced, in order to make possible the desired re-allocation.

87 Federal Radio Commission, No. 53.

Federal Radio Commission, Washington, D. C.

General Order No. 13.

May 28, 1927.

In consideration of the fact that a certain amount of time is required in many cases for making the changes of equipment required by changes of station frequency, and for securing suitable control equipment to maintain frequency without serious variation, the Federal Radio Commission hereby amends General Order No. 11, dated May 21, 1927, to read as follows:

"The Federal Radio Commision hereby orders that all temporary permits to operate radio broadcasting stations under the terms of the Radio Act of 1927, shall terminate at 3 o'clock, local standard time, on the morning of Wednesday, June 15, 1927, and that thereafter all radio broadcasting stations subject to the provisions of the Radio Act of 1927, shall be operated solely in accordance with the provisions of the licenses issued as of June 1, 1927, by the Federal Radio Commission."

The Federal Radio Commission hereby orders that all licenses for the period of sixty days, issued as of June 1, 1927, shall not become effective until 3 o'clock, local standard time, on the morning of Wednesday, June 15, 1927, and shall continue in effect, unless previously revoked or modified by order of the Commission, for a period of sixty days after June 15, 1927.

The following documents constitute a self-explanatory record of the operations of Station W G Y under licenses issued by the Federal Radio Commission and include such licenses: (R. Docs. 54 to 59 inclusive).

88 Federal Radio Commission, No. 54.

Copy.

Radio Division, 1927, Aug. 11 AM. 10.16.
60 day license, out 8/17/—.

Official No. 264.

Call Letter: WGY.
Mail Address: General Electric Co., 1 River Road, Schenectady, N. Y.

United States of America, Federal Radio Commission.

Application for Radio Station License (Other Than Ship and Amateur).

(Submit in Duplicate to District Supervisor of Radio. Swear to One Copy.)

To the Federal Radio Commission:

The undersigned, having duly made application for a radio station license under date of April 14, 1927, as required by law, and having been granted a license, effective June 15, 1927, which license expires on August 15, 1927, hereby certifies that all the statements of fact contained in said application dated April 14, 1927, are true as of the date of signing this present application, except as noted herein; and the applicant herein certifies that he is the owner of the radio station described in said application, and hereby applies for a radio station license, to become effective August 15, 1927 with the frequency and power authorized for the use of such station in the license under which it is now operated.

It is understood that the filing of this application in no way estops the applicant from making application for any other frequency or power assignment he may desire, under the terms of the General Orders of the Federal Radio Commission, and that it does not preclude the Federal Radio Commission from ordering such changes in frequency, power or hours of operation as, under the law, it may find to be in public interest, convenience or necessity.

The applicant waives any claim to the use of any particular frequency or wave length or of the other as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a radio station license in accordance with this application.

Dated this 8th day of August, 1927.

GENERAL ELECTRIC COMPANY,
Applicant,

By M. F. WESTOVER,
Secretary.

STATE OF NEW YORK,
County of Schenectady, ss:

M. F. Westover, being first duly sworn, upon his oath deposes and says that he is the Agent of (if applicant is not an individual, insert "agent of") above-named applicant and that the facts stated in the foregoing are true of his own knowledge.

M. F. WESTOVER.

Subscribed and sworn to before me this 8th day of August, 1927.

ARTHUR K. WILLEY, [SEAL.]
Notary Public.

Radio Supervisors's Report.

August 10, 1927.

Application received: U. S. Supervisor of Radio, Department of Commerce, Received Aug. 10, 1927, New York, N. Y.

Remarks: Forwarded for action.

HARRY L. BOGARDUS,
Acting U. S. Supervisor of Radio.

89 Federal Radio Commission, No. 55.

Copy.

Federal Radio Commission, Washington, D. C.

Commissioners: Ira E. Robinson, Chairman; Eugene O. Sykes, Vice Chairman; Orestes H. Caldwell, Sam Pickard, Harold A. Lafount. Carl H. Butman, Secretary.

Augus. 8, 1927.

General Electric Co.,
Radio Station WGY,
1 River Road,
Schenectady, N. Y. RC-3.

SIR:

Your license to operate your radio broadcasting station, which will expire in a few days, is hereby extended and renewed from its date of expiration until October 14, 1927, on which day it will terminate unless further extended or renewed by this Commission.

This extension or renewal is subject to all the terms and conditions of the now existing license.

[SEAL.] FEDERAL RADIO COMMISSION,
By W. H. G. BULLARD,
Chairman.

90 Federal Radio Commission, No. 56.

Copy.

Form No. 2.

OHC.

Official No. 264.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: WGY.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, General Electric

Company is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending October 14, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of New York, County of Schenectady, City or town of South Schenectady, Street, Mariaville Road, number —, and is described as follows:

General Electric V. T. Telephone.

91 The nature of the service authorized to be rendered under this license is as follows: Broadcasting:

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.

Power: Output 50,000 watts.

Call letters: WGY.

Time of operation: Shares time with WHAZ.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein

Dated this 15th day of September, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,

By —— ——, *Chairman.*

92 Federal Radio Commission, No. 57.

Federal Radio Commission, Washington, D. C.

October 12, 1927.

General Order No. 18.

For the purpose of bringing the sixty-day license periods for broadcasting stations into conformity with the calendar months, all broadcasting licenses dated August 15, 1927, and issued for the period of sixty days to October 14, 1927, except as subsequently modified by Special Orders Nos. 79 to 128, inclusive, or by later licenses already issued, are hereby extended and continued in force until October 31, 1927, at which time new sixty-day licenses will be issued.

Special Orders Nos. 79 to 128, inclusive, remain effective as of the dates specified in such orders and until October 31, 1927, at which time new sixty-day licenses will be issued.

93 Federal Radio Commission, No. 58.

Copy.

Official No. 264.

Oct. 7, 1927.
Call Letter: WGY.
Mail Address: 1 River Road, Schenectady, N. Y.

United States of America, Federal Radio Commission.

Application for Radio Station License (Other than Ship and Amateur.)

(Submit in Duplicate to District Supervisor of Radio. Swear to one copy.)

To the Federal Radio Commission:

The undersigned, having duly made application for a radio station license under date of April 14, 1927, as required by law, and having been granted a license, effective June 15, 1927, which license was extended August 15, 1927,

until October 14, 1927, hereby certifies that all the statements of fact contained in said application dated April 14, 1927, are true as of the date of signing this present application, except as noted herein; and the applicant herein certifies that he is the owner of the radio station described in said application, and hereby applies for a further 60-day extension of radio station license, to become effective October 15, 1927, with the frequency and power authorized for the use of such station in the license under which it is now operated.

It is understood that the filing of this application in no way estops the applicant from making application for any other frequency or power assignment he may desire, under the terms of the General Orders of the Federal Radio Commission, and that it does not preclude the Federal Radio Commission from ordering such changes in frequency, power or hours of operation as, under the law, it may find to be in public interest, convenience or necessity.

The applicant waives any claim to the use of any particular frequency or wave length or of the other as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a radio station license in accordance with this application.

Dated this 4th day of October, 1927.

By M. F. WESTOVER, *Applicant.*

STATE OF NEW YORK,
County of Schenectady, ss:

M. F. Westover, being first duly sworn, upon his oath deposes and says that he is Secretary, agent of (if applicant is not an individual, insert "agent of") above named applicant and that the facts stated in the foregoing are true of his own knowledge.

M. F. WESTOVER.

Subscribed and sworn to before me this 4th day of October, 1927.

ARTHUR K. WILLEY, [SEAL.]
Notary Public.

Radio Supervisor's Report.

U. S. Supervisor of Radio, Department of Commerce.

October 5, 1927.

Application received: Received Oct. 5, 1927.
Remarks: Forwarded for action.

HARRY L. BOGARDUS,
Actg. U. S. Supervisor of Radio.

94 Federal Radio Commission, No. 59.

Copy.

Form No. 2.

Official No. 264.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: W G Y.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, General Electric Company is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending December 31, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of New York, County of Schenectady, City or town of South Schenectady, Street,

Mariaville Road, number —, and is described as follows: General Electric V. T. Telephone.

The nature of the service authorized to be ren-
85 dered under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.
Power: Output 50,000 watts.
Call letters: W G Y.
Time of operation: Unlimited.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this first day of November, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,
By E. O. SYKES,
Vice Chairman.

The license of November 1, 1927, set forth above by its terms expired September 21, 1927, by General Orders Nos. 21, 22, 23, 25, 27, 33, 35, 38 and 44 of the Federal Radio Commission. The license period was extended until November 11, 1928. These orders are designated in the record as Documents 60 to 68 inclusive.

On January 14, 1928, the General Electric Company filed an application for renewal of its radio broadcasting station license (Station W G Y) as follows: (R. Doc. 69)

96 Federal Radio Commission, No. 69.

Copy.

Form No. 8.
Radio Division, 1928, Jan. 17, AM 9 40.
Call Letters W G Y. Frequency: ——. Power: ——.
Federal Radio Commission, Jan. 17, 1928.

United States of America, Federal Radio Commission.

#264.

Application for Renewal of Radio Broadcasting Station License.

(Submit in triplicate to District Supervisor of Radio. Swear to one copy.)

To the Federal Radio Commission:

1. Name of applicant: General Electric Company.

2. Post office address: State, New York; City, Schenectady; Street, River Road; Number 1.

3. Citizenship: ——.

4. If a corporation, company, or association:

(*a*) Organized under laws of State of New York.

(*b*) May one-fifth , or more, of capital stock be voted by an alien or his representative or by a foreign government or the representative thereof? No.

(*c*) State name and position of any director or officer who is an alien: None.

(*d*) If applicant is a subsidiary, state name and address of parent company: No.

(*e*) Has any change in ownership of this station occurred in the past 60 days? No.

5. Is the applicant the representative of an alien or foreign government? No.

6. Has the applicant, since February 23, 1927, been found guilty by any Federal Court of unlawfully monopolizing, or attempting to unlawfully monopolize, radio communication through control of manufacture or sale of radio apparatus, exclusive traffic arrangements, or any other means, or by unfair methods of competition? No.

7. Description of transmitting apparatus:

(*a*) Make: General Electric; Type, Special radio telephone; Maximum power, 150 Kw; Minimum, 25 KW, at 12,500 volts; Output power of oscillator or amplifier tube, ZT-1 15 KW as grid controlled amplifier Radio-crystal— 1-UX 214; 1-211; 1-204A; 2-851; 2-207; 6-ZT1. Electron tubes, number of Audio— 1-UX211 1-UV 851; 6-UV 207 50

KW operation. Oscillators: Number of 2-UV 207 Total plate current 1.4 amp. Total plate voltage 10,500. Modulators: Number of 6-UV 207. Total plate current 1.4 amp. Total plate voltage 10,500. Amplifiers: Number of 6-ZT 1. Total plate current 13 amp. Total plate voltage 12,500. Type of frequency control employed Automatic Piezo Crystal control, Temperature controlled. Make of frequency control General Electric, Spare Complete 12.5 KW transmitter with separate antennæ and power supply available.

(*b*) Has any change in equipment been made in the past 60 days? Yes, amplifer system and tubes.

97 8. Location of transmitter: State, New York; County, Schenectady; City or town, Near South Schenectady; Street, None; No., None.

(*a*) Approximate number of families within one mile of transmitter? 135. Two miles? 1605. Three miles? 5203.

(*b*) Location of studios: Studios located in new International General Electric building conveniently accessible railroad and to all parts of the city. Wire connections to four hotels, 16 churches, 2 theaters, State Capital, etc.

(*c*) Has any change in location of either transmitter or studio been made the past 60 days? No.

9. Specify actual periods station is operated:

(a)—

	A. M.	P. M.	Total daily hours.
Sunday	10:30–12:00	3:25-10:45	8 hrs. 50 min.
Monday	6:45– 8:00	12:30-50; 2:00-3:00; 6:00-11:00	8 hrs. 10 min.
Tuesday	8:30– 8:45	12:30-50; 2-3; 6-1 A. M.	10 hrs. 10 min.
Wednesday .	11:15–11:30	12:30-50; 6-11	7 hrs. 10 min.
Thursday ..	11:55–12:00	12:30-50; 2-2:40; 6-12:30	9 hrs. 20 min.
Friday		12:30-50; 2-3; 6-11	8 hrs. 10 min.
Saturday		12:30-50; 6:30-12	7 hrs. 40 min.
Total Weekly Hours.....			59 hrs. 30 min.

Every day excepting Sunday.

(*b*) Does station divide time, and if so with what station? No.

(c) Does station obtain programs from what is known as a "Chain"? Yes, two chains.

(*d*) Name of chains: N. B. C., Red Network and New York State chain, WFBL—WHAM—WMAK.

(*e*) What is total hours per week of chain pr[illegible]ms (i. e. programs, both paid or sustaining, which ar[illegible]uplicated by any other station)? Red Network, 21.7 hrs.; New York chain, 10.6 hrs.

(*f*) How are stations connected? Wire? Yes. Radio? No.

10. Under existing license:

(*a*) What frequency is used? Kilocycles? 790. Meters? 379.5.

(*b*) What power output is employed after 6 p. m.? 50 KW.

(*c*) What power output 6 a. m. to 6 p. m.? Usually employ 12.5 KW spare transmitter.

(*d*) Total number of hours station operated during past 12 months? 2582 hrs. 25 min.

(*e*) State minimum number of hours station will be operated each quarter, 690 hrs.

11. Attach printed program for last week.

98 12. Why will the operation of the station be in the public convenience, interest, and necessity? The population within 100 miles of Schenectady exceeds 1,400,000. This community, including Albany (New York State capital), Troy, Amsterdam, Utica, and many villages and rural sections, has depended almost entirely on WGY during the past six years for radio programs. The New York City, Boston, Springfield and Buffalo stations are not well received in this vicinity on account of fading. Many more distant listeners have depended on WGY for a comparatively reliable program source. Public interest has been clearly indicated in listeners' letters commenting on WGY's services in broadcasting political and educational talks, police reports, music and entertainment of varied character so selected that they would fill the needs of our comparatively large rural audience which is especially dependent on radio during leisure hours. WGY has the resources of the research laboratories of the General Electric Company and is used as a developmental station for testing new inventions and ideas. Among the major improvements developed in connection with WGY are: Higher powered transmitters; large vacuum tubes; condenser microphones; accurate maintenance of assigned frequency (WGY was the

senior Bureau of Standards standard frequency station); short wave developmental broadcasting including a 32.77 meter, and a 22 meter transmitter operating on regular schedules; development of means for improving audio frequency characteristics bettering the quality of broadcasting; antenna design. Thus, WGY has assisted in designing transmitters for other stations desirous of taking advantage of current developments. It is believed that because of its part in the development of the radio art and its service to broadcast listeners, the WGY station activities could not be discontinued without imposing a real public hardship.

(a) Average amount of time weekly devoted to following services: (1) Entertainment, 24.3 hrs.; (2) Religious, 3.5 hrs.; (3) Commercial (mainly 1 & 4) 22.6 hrs.; (4) Educational, 1.75 hrs.; (5) Agricultural, 3.25 hrs.; (6) Fraternal, — hrs.; (7) Weather & Market Repts. & News, 4.1 hrs.

(*b*) Is direct advertising conducted in interest of applicant? No; or others, No.

(1) Are merchandise prices quoted in interest of applicant? No; or others, No.

(*c*) Does or will applicant sell time? Yes.

(1) Average number of hours sold weekly before 6 p. m.? 9 hrs.; after 6 p. m.? 13.6 hrs.

(2) Average number of hours used weekly in interest of applicant? None directly.

(*d*) Average amount spent weekly for talent? $850.

(*e*) Total annual net income, exclusive of expense for talent?

12 (*e*) *Year* 1927, *WGY*

Total operating expenditures	$220,308
Talent expenses (included above)	43,764
Income commercial programs	37,850

December expenses estimated.

(*f*) If applicant does not propose to sell time, how will station be supported? By the General Electric Company.

13. Give names and classes of licensed operators in charge of station: Harry Sadenwater, Commercial Extra First Class; R. S. Hoff, Commercial First Class; C. B. Schou, Commercial First Class.

(*a*) Number of other employees? 17. Total weekly pay roll, $970.66.

14. Do you maintain continuous watch on ship calling channel during operative hours? Yes.

15. Does the applicant own or control any other broadcast station? Yes.

(*a*) State number and call letters of such stations? 2—KGO and KOA.

(*b*) Does applicant own or control any radio station other than broadcasting? Yes.

(*c*) Give number and type of any such stations: 13—Experimental.

(*d*) For what purpose are those stations used? Developmental and research work.

99 16. History of Station:

(*a*) Date of first license to broadcast: February 4, 1922.

(*b*) First frequency: 832.8; Wave length: 360 meters; Power: 1500 watts.

(*c*) List all changes in frequency and power authorized, with dates:

16 (*c*) May 3, 1922.—618.2 KC (485 meters) authorized for weather & market reports.

Sept. 27, 1922.—749.6 KC (400 meters) for programs and 618.2 KC for weather reports. Power changed to 1000 watts in the antenna.

May 21, 1923.—Assigned 790 KC—1000 watts.

Dec. 31, 1924.—Increased to 1500 watts.

Jan. 28, 1925.—Increased to 2000 watts.

Aug. 8, 1925.—Increased to 3000 watts.

Aug. 22, 24, 25, 1925.—Test programs 50KW.

Aug. 28, 1925.—Increased to 3000 watts.

Sept. 10, 1925.—Increased to 3500 watts.

Sept. 24, 25, 26, 1925.—Test programs 50 KW.

Sept. 30, 1925.—Increased to 4000 watts.

Oct. 3, 1925.—Authorized operate 50 KW Saturdays and Sundays.

Oct. 13, 1925.—Increased to 4500 watts.

Oct. 26, 1926.—Increased to 5000 watts.

May 8, 1926.—50 KW regular operation authorized.

June 1, 1927.—Power reduced to 30 KW.

Aug. 3, 1927.—Test programs authorized at 100 KW.

Sept. 1, 1927.—Regular programs authorized at 100 KW to Sept. 15.

Sept. 15, 1927.—Power increased to 50 KW.

(*d*) On what frequencies and with what power did station operate between July 1, 1926, and February 23, 1927? 790 Kilocycles, 50 KW.

17. The applicant waives any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a radio station license in accordance with this application.

Dated this 14th day of January, 1928.

GENERAL ELECTRIC COMPANY,
Applicant.

By: W. W. FRENCH,
Asst. Secretary.

STATE OF NEW YORK,
County of Schenectady, ss:

W. W. French, being first duly sworn, upon his oath deposes and says that he is the Assistant Secretary (if applicant is not an individual, insert "agent of") abovenamed applicant and that the statements in the foregoing application are true of his own knowledge, and those made on information and belief, he believes to be true.

W. W. FRENCH.

Subscribed and sworn to before me this 14th day of January, 1928.

[SEAL.] ARTHUR K. WILLEY,
Notary Public.

Radio Supervisor's Report.

Application received: Jan. 16, 1928.

Remarks (state any pertinent facts): Forwarded for action.

ARTHUR BATCHELLER,
U. S. Supervisor of Radio.

Pursuant to request of the Federal Radio Commission the General Electric Company transmitted the following letter and affidavit to the Commission: (R. Docs. 70 and 71)

100 Federal Radio Commission, No. 70.

Copy.

Federal Radio Commission, Aug. 20, 1928.

General Electric Company.

General Office: Schenectady, N. Y.

1 River Road,
Schenectady, N. Y., August 18, 1928.

Federal Radio Commission,
Washington, D. C.

GENTLEMEN:

As requested in your letter of August 13th, 1928, I am pleased to advise of the location of the studios from which station WGY regularly broadcasts programs, as follows:

Two studios at Schenectady, N. Y. Main studios.
NBC studios in New York City.
NBC studios in Washington.
WFBL studio, Onondaga Hotel, Syracuse, N. Y.
WHAM studio, Sagamore Hotel, Rochester, N. Y.
WMAK studio, Liberty Bank Bldg., Buffalo, N. Y.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

M.P.R.:E.O.

101 Federal Radio Commission, No. 71.

Copy.

Federal Radio Commission, Aug. 20, 1928.

Federal Radio Commission, 71.

Station WGY is now broadcasting regularly the following hours of schedule after 7 P. M.:

Sunday, 3½ hours.
Monday, 5 hours.
Tuesday, 5 hours.
Wednesday, 4½ hours.
Thursday, 5½ hours.
Friday, 5 hours.
Saturday, 5 hours.

Station WGY has operated a total of 806 hours 22 minutes between 7 P. M. and midnight during the six months ending June 30th, 1928, of which 507 hours 28 minutes were national "chain" programs and 58 hours and 56 minutes were local "chain" programs (New York State Network).

Type of apparatus used to insure that frequency is kept constant?

Automatic quartz crystal control with automatic temperature regulation.

STATE OF NEW YORK,
County of Schenectady:

Martin P. Rice, being duly sworn, depises and says that the foregoing facts are true of his own knowledge and belief.

MARTIN P. RICE.

Subscribed and sworn to before me this 18th day of August, 1928.

ARTHUR K. WILLEY, [SEAL.]
Notary.

On August 22, 1928, the Commission issued its General Order No. 37: (R. Doc. 72)

102 Federal Radio Commission, No. 72.

Federal Radio Commission, Washington, D. C.

General Order No. 37.

Federal Radio Commission, 72.

At a session of the Federal Radio Commission held at its office, in Washington, D. C., on August 22, 1928.

It is ordered that in every case where the Commission, upon examination of any application for a construction permit, for a station license, for a renewal of a station license, or for modification of a station license, does not reach a decision that public interest, convenience or necessity would be served by the granting of such application.

1. The Secretary of the Commission shall forthwith notify the applicant to that effect and shall at the same time notify the applicant of the time and place for a hearing on such application, the time and place to be fixed as hereinafter directed.

2. Unless the Commission shall specifically provide otherwise, the place for such hearing shall be at the office of the Commission at Washington, D. C.

3. Unless the Commission shall specifically provide otherwise, the time for such hearing shall be at the hour of ten (10) o'clock a. m., on the first Tuesday falling after the lapse of a period of twenty (20) days from the date on which the Secretary shall mail such notification to such applicant.

4. No applicant will be heard unless ten (10) days or more prior to the date set for such hearing, he shall have communicated to the Secretary a written notice of his desire to be heard by the Commission, together with a statement of the approximate time which in his opinion the presentation of his case will require. Said notice and said statement may be communicated to the Secretary by telegraph.

103 5. Hearings shall commence at the hour of ten (10) o'clock a. m., on Tuesday of each week and shall continue throughout the week until the cases set for each

Tuesday have all been heard, continued, or otherwise disposed of.

6. Every applicant desiring a continuance of the hearing on his application shall, not later than the day prior to that on which such hearing is set, deliver to the Secretary a written motion to that effect (which motion may be made by telegraph) accompanied by a brief statement of his reasons in support of such motion. Such motion may be granted or denied by any member of the Commission, or if none of them is present at the office of the Commission, then by the Secretary; each action with respect to such a motion shall be reported to the Commission at its first meeting following such action.

7. The Commission may, of its own motion, continue any hearing to a later date.

8. Every person desiring that witnesses be summoned or that the production of books, documents, or papers be compelled shall make written application therefor to the Secretary on forms to be provided by the Secretary on request.

9. Evidence may be heard by any one or more of the members of the Commission. Where a hearing takes place before less than a quorum (i. e., three) of the Commission, the applicant shall, upon request duly made in the record, be entitled to present argument in support of his application before a quorum of the Commission.

10. Each case will be given a docket number and, so far as possible, such docket number shall be noted on all correspondence, papers or motions having to do with such case.

IRA E. ROBINSON,
Chairman.

The following orders of the Federal Radio Commission are self-explanatory: (R. Docs. 73, 74 and 78)

104 Federal Radio Commission, 73.

#149.

Federal Radio Commission, Washington, D. C.

August 30, 1928.

General Order No. 40.

At a session of the Federal Radio Commission held at its office, in Washington, D. C., on August 30, 1928.

The Commission has determined that the definite assignment of a band of frequencies for broadcasting, the maintenance of a separation of 10 kc between frequencies used in broadcasting, the reservation of certain frequencies for exclusive use by stations in the Dominion of Canada, and the setting aside of a certain number of other frequencies for shared use by the United States and the Dominion of Canada, all as hereinafter specified in this Order, will serve public interest, convenience or necessity.

The Commission has further determined after careful consideration that the allocation of frequencies, of time for operation and of station power, for use by broadcasting stations, to the respective Zones, as hereinbelow specified in this Order:

a) Is necessary in order to comply in part with the requirements of Section 9 of the Radio Act of 1927 as amended by Section 5 of the Act of Congress March 20, 1920, insofar as it requires that the licensing authority shall as nearly as possible make and maintain an equal allocation of bands of frequency or wavelengths, of periods of time for
105 operation, and of station power, to each of the Zones when and insofar as there are applications therefor and

b) Will promote public interest and convenience and will serve public necessity, insofar as this can be done in a manner consistent with the requirements of said Section 9 of the Radio Act of 1927 as amended by Section 5 of the Act of Congress, March 28, 1928, and will greatly improve reception conditions in the broadcast band by the elimination of a large portion of the interference which now exists.

It is therefore ordered:

Paragraph 1. That a band of frequencies extending from 550 kc to 1500 kc, both inclusive, be, and the same is hereby, assigned to and for the use of broadcasting stations, said band of frequencies being hereinafter referred to as the broadcast band. This order is not to be construed as prohibiting the licensing of maritime mobile services on the frequency of 1365 kc, as provided by the International Radiotelegraph Convention of 1927.

Paragraph 2. That within said broadcast band, a separation of 10 kc be maintained between the frequencies assigned for use by broadcasting stations.

Paragraph 3. That, of the frequencies within said broadcast band, (*a*) the frequencies of 690, 730, 840, 910,
106 960 and 1030 kc be, and the same are, hereby reserved for use by broadcasting stations located in the Dominion of Canada, and shall not be assigned to any broadcasting station licensed by this Commission; (*b*) the frequencies of 580, 600, 630, 780, 880, 890, 930, 1120, 1200 and 1210 kc be, and the same are hereby, set aside for simultaneous use by broadcasting stations located both in the Dominion of Canada and in the United States, its Territories and possessions, and no station will be authorized by this Commission on any of these frequencies with an authorized power which will cause interference at the boundary line between the Dominion of Canada and the United States of America, or in excess of 500 watts at any place within the United States of America or the Territories of Alaska and Porto Rico.

Paragraph 4. That the frequencies within said broadcast band (subject to the foregoing), and periods of time for operation and station power to be used by broadcasting stations on said frequencies be, and the same are hereby, allocated equally to the Zones as follows:

A. The following frequencies are allocated to the First, Second, Third, Fourth and Fifth Zones, respectively, as below indicated for use by broadcasting stations, the amount of power to be used by such stations to be determined by further order of the Commission:

107 First Zone: 660, 710, 760, 860, 990, 1060, 1100, and 1150 kc.

Second Zone: 700, 750, 820, 980, 1020, 1070, 1110, and 1170 kc.

Third Zone: 650, 740, 800, 850, 1040, 1080, 1140, and 1190 kc.

Fourth Zone: 670, 720, 770, 810, 870, 1000, 1090, and 1160 kc.

Fifth Zone: 640, 680, 790, 830, 970, 1050, 1130, and 1180 kc.

B. The following frequencies are allocated each for use by not less than two Zones, with broadcasting stations in those Zones being permitted to operate simultaneously, each station to have an authorized power not to exceed 5 kilowatts, the particular Zone entitled to share in the allocation of any particular frequency to be determined by further order of the Commission:

1460, 1470, 1480, and 1490 kc.

C. The following frequencies are allocated for use by not less than two nor more than three Zones, the broadcasting stations in those Zones being permitted to operate simultaneously, and to have an authorized power not to exceed 1000 watts, the particular Zones entitled to share in the allocation of any particular frequency to be determined by further order of the Commission:

580, 590, 600, 610, 620, 630, 780, 880, 890, 900, 920, 930, 940, 950, 1010, 1120, 1220, 1230, 1240, 1250, 1260,
108 1270, 1280, 1290, 1300, 1320, 1330, 1340, 1350, 1360, 1380, 1390, 1400, 1410 and 1430 kc.

(Except that in those cases where the station locations and powers are such that interference will not be caused, four or five Zones instead of three Zones may share one or more of the foregoing frequencies where practicable.)

D. The following frequencies are allocated for use in all five Zones with broadcasting stations permitted to operate simultaneously, each station to have an authorized power not to exceed 1000 watts:

550, 560, 570, 1440 and 1450 kc.

E. The following frequencies are allocated for use in all five Zones by broadcasting stations in simultaneous operation with an authorized power not to exceed 100 watts, the

number of such stations to be permitted to operate simultaneously in each Zone on each of said frequencies to be determined by further order of the Commission:

1200, 1210, 1310, 1370, 1420, and 1500 kc.

F. Whenever the word "frequency" is used in the preceding sub-paragraphs A, B, C, D, and E of this paragraph, it is to be understood as connoting periods of full-time operation, that is to say twenty-four hours daily, and every allocation herein of a frequency to a particular Zone
109 is to be considered as carrying with it an assignment of full-time operation on that frequency to that Zone.

Paragraph 5. That the allocation hereinbefore ordered in paragraph 4 of this Order be, and the same is hereby declared to be, effective on October 1, 1928, at the hour of 3 o'clock, a. m., Eastern Standard Time; and that the provisions of paragraphs 1, 2 and 3, be, and the same are hereby declared to be, effective as of the date of the issuance of this Order.

FEDERAL RADIO COMMISSION,
By E. O. SYKES,
Acting Chairman.

#150.

110 Federal Radio Commission, No. 74.

Statement to Accompany General Order No. 40.

General Order No. 40, issued yesterday by the Federal Radio Commission, supplies the official basis for an adjustment in the assignment of the country's broadcasting facilities, under a plan which it is believed will provide an improved standard of radio reception generally, and also distribute the broadcasting channels, powers and periods of time on the air equally among the five radio zones as directed by the last Congress.

The plan provides for full-time assignments for 100-watt stations equalling in number the total of all other classes of broadcasters put together.

Of the 74 channels made available for high-grade reception, 34 will be assigned for regional service, permitting

125 full-time positions for this type of station, and 40 channels will be assigned to stations with minimum power of 5000 watts and a maximum to be determined by the Commission and announced with the allocation. On these forty channels only one station will be permitted to operate at any time during night hours, thus insuring clear reception of the station's program, up to the extreme limit of its service range. These forty channels will be assigned eight to each of the five zones, thus insuring wide geographical distribution of the country's higher-power broadcasting facilities to all sections.

On the 34 channels shared by regional stations, ranging in power from 250 to 1000 watts and assigned two, three or four per channel, spacings generally of 1000 to 1500 miles have been observed.

111 Throughout the whole allocation, wide geographical spacings have been observed between stations on adjoining channels, in order to eliminate objectionable "cross-talk."

Summarizing, for "local" stations of 50 to 100 watt ratings, 150 full-time positions have been provided, or 30 per zone; 125 regional positions have been provided for 250 to 1000 watt stations, and 40 positions for stations of 5000 watts and above. Each full-time assignment available for night use, in many instances, is shared by two or more stations or transmitters, depending upon the number of licensed stations to be accommodated in the zone or locality.

Recapitulating by zones, the equal division of the foregoing facilities among the five zones, will provide each zone with *a* 8 full time assignments for stations of 5000 watts and above; 24 positions for 500 watt and 1000 watt stations, and 30 positions for 50 watt and 100 watt stations.

In announcing this plan the Commission does so realizing that it may have imperfections, but believes it an approach to an ideal situation which may be reached in the future.

112 Federal Radio Commission, No. 78.

#200.

Minutes of the Federal Radio Commission.

September 8, 1928—10 o'clock a. m.

Present: Commissioners Sykes, Acting Chairman, Caldwell, Pickard and LaFount; the Secretary, the Chief Engineer, Captain Hill, Mr. Sutton and the General Counsel.

Rules and Regulations.

A motion was duly made and carried that the following regulation be adopted and promulgated as General Order No. 43:

"It is ordered that, until further order of the Commission no two or more of the broadcasting stations assigned to the frequencies allocated under Sub-paragraph A of Paragraph 4 of General Order No. 40 shall, during the period beginning with November 11, 1928, broadcast simultaneously the same identical program for more than one hour daily during the hours between 7 o'clock p. m. and 12 o'clock midnight, local standard time at the location of the station farthest east, unless

a) The transmitters of such stations are separated by a distance in excess of three hundred (300) miles, or

b) Such stations are operating on the same frequency, or

c) Such stations receive special permission from the Commission. This permission will be granted only in the case of programs of extraordinary national interest or of a nature such that public interest, convenience or necessity would clearly be served by their duplication to a greater extent than is permitted by the foregoing provisions of this order.

All stations participating in a duplication of programs in violation of this Order will be held responsible for such violation, as will also any key station from which such duplication of programs proceeds."

Commissioner Sykes was authorized and directed to sign General Order No. 43 as Acting Chairman.

113 Extension of Licenses.

A motion was duly made and carried that the following extension be adopted by the Commission to be entered and promulgated as General Order No. 44:

"It is ordered that, with the exception hereinafter set forth, all existing licenses to broadcast, subject to such modifications, conditions and extensions as may be appended thereto, be, and the same are hereby, further extended for a period of forty-two (42) days from October 1, 1928, to terminate at 3 o'clock a. m., Eastern Standard Time, November 11, 1928. This order shall not apply, and no extension of any existing license shall be deemed to be granted, with respect to any broadcasting station listed in General Order No. 32 which was ordered to consolidate with any other station, and which shall be notified by the Commission prior to October 1, 1928, that its license will not be thus extended."

New Allocation.

There was presented to the Commission for its approval, a new allocation of all broadcasting stations specifying the frequency, amount of power and hours of operation for such stations. This allocation is set forth in a document numbered "175" and for release Tuesday, September 11, 1928, entitled as follows:

"List of radio broadcasting stations arranged according to states showing their power and frequency as of September 1, 1928, and the new allocation so that comparisons can be made easily. This new allocation is to be effective at 3 o'clock a. m., Eastern Standard Time, November 11, 1928."

Together with supplements showing corrections, the said allocation listed certain broadcasting stations not yet in licensed operation, with respect to which there are applications for construction permits pending before the Commission. It also listed certain other broadcasting stations with

an assignment of power in excess of that now authorized under the existing licenses of such stations, such stations having applications pending before the Commission either for construction permits or for modifications of their licenses by increase in power. With respect to such stations, the Commission reserved action on each such application until such application could be taken up and considered separately, and determined that the said allocation, if adopted, should not be taken as a granting of any of said applications.

114 Having examined said new allocation, the Commission made *the Commission made* the following findings:

1. With respect to each broadcasting station listed therein, the new assignments of frequency, power and hours of operation will serve public interest, convenience, or necessity.

2. All changes in frequency, authorized power and/or hours of operation which said new allocation will impose on existing broadcasting stations will promote public convenience and interest, and will serve public necessity, and are necessary to prevent interference between broadcasting stations.

3. With respect to all assignments of frequency, authorized power and hours of operation specified in said new allocation, and with respect to all changes thereof imposed by said new allocation, said assignments and said changes are necessary to carry out and to comply with the provisions of the Radio Act of 1927 and the provisions of Section 5 of the Act of Congress approved March 28, 1928, entitled "An Act continuing for one year the powers and authority of the Federal Radio Commission under the Act of 1927, and for other purposes," and with the provisions of General Order No 40 of the Commission.

All the foregoing findings, however, are to be considered tentative and subject to such new facts and considerations as may be brought to the attention of the Commission prior to November 11, 1928 The Commission thereupon determined upon the following course of procedure for putting said new allocation into effect:

1. That said new allocation shall become effective at the hour of 3 oclock a. m., Eastern Standard Time, November 11, 1928, with respect to all broadcasting stations listed therein which at that date shall be in operation under licenses issued by the Commission, and which shall, prior to that date, have received licenses, renewals of licenses or extensions of licenses authorizing them to operate after that date.

2. That with respect to all stations listed therein which are now licensed by this Commission and which have on file with this Commission applications for renewal of licenses, the Commission will examine such applications and on or shortly after October 12, 1928, will issue renewals of licenses in all cases where it finds that public interest, convenience or necessity will be served thereby, said
115 renewals however, to authorize the frequency, power and hours of operation set forth in said new allocation. In all cases where the Commission is not satisfied that public interest, convenience or necessity would be served by granting of applications for renewals, the Commission will hold hearings in accordance with Section 11 of the Radio Act of 1927, and pending the conclusion of such hearings will modify the existing licenses of such applicants in accordance with said new allocation and will extend such licenses thus modified for a limited period of time beyond November 11, 1928.

3. That hearings will be accorded to all stations making proper application therefor asking for modification of the assignments indicated in said new allocation said applications to take the form of requests for modification of the licenses or renewal of licenses to be issued on or shortly after October 12, 1928; that such hearings will, so far as possible, be held during the period between October 12 and November 11, 1928; that applications for such modifications will be received prior to October 12 as well as thereafter.

4. That in the event that as a result of any such application for modification and/or of any hearing granted thereon, the assignment of any broadcasting station is changed, the said new allocation is to be considered as changed accordingly.

116 CARL H. BUTMAN.

CARL H. BUTMAN,

Secretary.

The assignments of stations made by the Federal Radio Commission pursuant to General Order No. 40 are contained in Record Doc. No. 79. This document shows the assignment of Station W G Y to be as follows:

			Assignments.				
			Former.			New.	
"Station.	Location.	Owner.	Shared with.	Power.	Kc.	Shared with.	Power. Kc.
W G Y	S. Schenectady.	Generel Electric Co.	....	50000	790	limited	50000 790

Addendum

"The following stations, included in the foregoing list, are to be classed as part-time stations:

* * * * * * *

Station	Location
W G Y	Schenectady, New York

* * * * * * *

"The foregoing stations will not be permitted to operate during the evening hours simultaneously with other stations assigned to the same frequencies."

The status of Station W G Y under this assignment is further governed by General Orders Nos. 41, 42 and 48 of the Federal Radio Commission. These are contained in record documents 75, 76 and 104.

117 Federal Radio Commission, No. 75.

#176.

Federal Radio Commission, Washington, D. C.

General Order No. 41.

At a session of the Federal Radio Commission held at its office in Washington, D. C., on September 4, 1928.

It is ordered that a daytime broadcasting station is hereby defined as a station which under its license from this Commission is permitted to operate only during certain

designated hours during the daytime and is not permitted to operate at any time when its operation will cause heterodyne interference with other broadcasting stations assigned to the same frequency.

No daytime station will be permitted to operate after the average time for sunset during any particular month, to be determined from time to time by the Chief Engineer of the Commission. The time of such sunset shall be taken with reference to the location of the transmitter of the daytime broadcasting station unless it is the farthest East of the stations assigned to the same frequency; in this event the time shall be taken with reference to the location of the transmitter of the nearest broadcasting station on the same frequency located to the West of such daytime broadcasting station.

FEDERAL RADIO COMMISSION,
By E. O. SYKES,
Acting Chairman.

Attest:
[SEAL.] CARL H. BUTMAN,
Secretary.

118 Federal Radio Commission, No. 76.

#177.

Federal Radio Commission, Washington, D. C.

General Order No. 42.

At a session of the Federal Radio Commission held at its office in Washington, D. C. on September 7, 1928.

It is ordered, 1. That, except as hereinafter stated, no broadcasting station assigned to any of the frequencies set forth in subparagraph A of Paragraph 4 of General Order No. 40 be authorized to use in excess of 25 kilowatts until further order of the Commission.

2. That, for the purpose of determining by experiment whether interference will result from the use of a greater amount of power, the Commission may authorize the use of not more than 50 kilowatts power by any of such broadcasting stations for the next license period beginning after the date of this Order.

3. That, for experimental purposes, the Commission may authorize the use of any amount of power in excess of 50 kilowatts, in equal amounts for each Zone, by such broadcasting stations at such hours between midnight and morning as may be determined by the Commission.

4. That the Commission may authorize the use of an amount of power not in excess of twice that above set forth in Paragraphs 1 and 2, by the broadcasting stations therein referred to respectively, for daytime operation only, the exact hours to be determined by the Commission.

5. That nothing stated in this Order shall be construed as giving any broadcasting station any right or claim to any of the maximum amounts of power hereinabove set
119 forth, or to any amount of power in excess of the amount which the Commission shall from time to time in each case find best calculated to serve public interest, convenience or necessity.

FEDERAL RADIO COMMISSION,
By E. O. SYKES,
Acting Chairman.

Attest:
[SEAL.] CARL H. BUTMAN.

120 Federal Radio Commission, No. 104.

#12.

Federal Radio Commission, Washington, D. C.

October 24, 1928.

General Order No. 48.

At a session of the Federal Radio Commission held at its offices in Washington, D. C., on October 22, 1928.

A limited time broadcasting station is hereby defined as a station which, under its license from this Commission, is permitted to operate during hours allowed daytime broadcasting stations as specified in General Order No. 41, and in addition during certain time temporarily not used by the unrestricted station or stations on the same frequency. An example is the use of late evening hours by a limited

time broadcasting station in the West after closing of an Eastern station on the same frequency.

A limited time broadcasting station desiring to operate after sunset shall so notify the Commission, which will ascertain what hours the use of which is not desired by the unrestricted station or stations on the same frequency, and will thereafter authorize the operation of the limited time station accordingly, subject, however, to the right of said unrestricted station or stations to reclaim the use of such hours upon reasonable notice to the Commission and to the limited time broadcasting station.

A limited time broadcasting station will not be permitted to operate at any time when its operation will cause heterodyne interference with other broadcasting stations assigned to the same frequency.

FEDERAL RADIO COMMISSION,
By IRA E. ROBINSON,
Chairman.

Attest:
[SEAL.] CARL H. BUTMAN,
Secretary.

121 Federal Radio Commission, No. 80.

#180.

Federal Radio Commission, Washington, D. C.

September 11, 1928.

To all persons holding licenses to broadcast:

The Commission has found that certain changes in the frequencies, authorized power, and time of operation of existing broadcasting stations will promote public convenience and interest and will serve public necessity. It has further found that these changes are necessary in order to comply in part with the requirements of Section 9 of the Radio Act of 1927 as amended by Section 5 of the Act of Congress of March 28, 1928, and with the requirements of General Order No. 40 heretofore issued by the Commission on August 30, 1928. These changes are all indicated on the attached list of broadcasting stations.

The list includes certain new stations which have heretofore filed applications for construction permits or for licenses. It also includes increased power assignments to certain existing stations which have applied therefor. In both cases, each application has been from a zone, or from a State within a zone, which is below its quota in number of broadcasting licenses, in number of frequencies, in the amount of station power, or in periods of time for operation, and the Commission has granted such applications, after first examining and determining in each case, that public interest, convenience or necessity would be served thereby.

122 The new allocation is to become effective on November 11, 1928, at the hour of 3 o'clock a. m., Eastern Standard Time. This announcement is not to be *construed as a renewal* of any existing station license; it is to apply solely to those stations which shall be in existence at the time it goes into effect, whether by reason of renewals of existing licenses or by reason of further extensions of existing licenses or otherwise.

It is the intention of the Commission to issue renewal licenses to most of the existing broadcasting stations listed in the attached list on or shortly after October 12, 1928, said licenses to be for a period of 90 days commencing on November 11, 1928. These licenses will correspond to the data on the attached list with respect to the frequency, the authorized power, and the hours of operation to be assigned to the respective stations. They cannot be issued prior to that date because of a provision in the Radio Act of 1927 forbidding the granting of a renewal of an existing station license more than 30 days prior to the expiration of the original license. *The existing licenses are being extended by order of the Commission for 42 days from October 1, 1928, to terminate on November 11, 1928, at the hour of 3 o'clock a. m., Eastern Standard Time.* This extension of time prior to the effective date of the reallocation will give all broadcasting stations an opportunity to take such steps as may be necessary to enable them to conform to their new assignment, and also to ask for and obtain from the Commission hearings in cases where the assignments

123 are not satisfactory. In a limited number of cases where the Commission is not satisfied that public interest, convenience or necessity would be served by the

granting of renewal licenses to existing broadcasting stations, the Commission will so notify the licensees and hearings will be held before renewals will be granted.

It is the desire of the Commission that any broadcasting station which is dissatisfied with its assignment under the reallocation should have an opportunity to be heard and to demonstrate that public interest, convenience or necessity would be served by a better assignment. In fairness to the stations affected the Commission believes that these hearings should, so far as possible, take place prior to November 11, 1928, the effective date of the reallocation. The Commission will therefore entertain and accord a hearing on all applications asking for a modification of the renewal licenses which will be issued on or shortly after October 12, 1928. In order to save time, the Commission will permit such applications to be filed prior to that date, and will set them for hearing as soon after that date as possible.

All such applications must specify what frequency, power, and/or hours of operation are desired by the applicant; no application will be entertained which fails to comply with this requirement. As soon as the date for hearing is set, the Commission will notify all broadcasting stations which are directly interested and will give them an opportunity to be heard as well as the applicant. Where
124 the application is for a change in frequency, all broadcasting stations assigned to the requested frequency will be so notified. Where the application is for an increase in power all broadcasting stations assigned to the frequency on which the proposed increased power is to be used, as well as all stations assigned to adjacent channels that are likely to be affected by the increase, will be so notified. Where the application is for an increase or change in hours of operation, all stations the hours of operation of which would be reduced or changed thereby will be so notified.

Applications should be made on forms to be provided by the Commission. It is expected that such forms will be in the hands of the Radio Supervisors in the near future but in the meantime they may be obtained by application to the Secretary of the Commission.

FEDERAL RADIO COMMISSION,
By E. O. SYKES,
Acting Chairman.

The following communications and documents are self-explanatory: Record Docs. 82 to 89 inclusive, 91, 92, 94, 95 and 96.

125 Federal Radio Commission, No. 82.

Copy.

General Electric Company, Schenectady, N. Y.

September 15, 1928.

Mr. Carl H. Butman,
Sec., Federal Radio Commission,
Internal Building,
Washington, D. C.

DEAR MR. BUTMAN:

Please allow this to serve as a gentle reminder that I would appreciate receiving the special forms for applying for a hearing before the Federal Radio Commission in the matter of the re-allocation plan.

Very truly yours,

HARRY SADENWATER,
E. O.,
Station WGY.

126 Federal Radio Commission, No. 83.

Copy.

September 19, 1928.

Mr. Harry Sadenwater,
General Electric Company,
Schenectady, New York.

DEAR SIR:

Replying to your letter of September 15, there are inclosed herewith six forms for modification of station license.

Very truly yours,

CARL H. BUTMAN,
Secretary.

SWP.

127 Federal Radio Commission, No. 84.

Copy.

General Electric Company, 1 River Road,
Schenectady, N. Y.

September 21, 1928.

Mr. O. H. Caldwell,
c/o McGraw-Hill Publishing Company,
10th Avenue at 36th Street,
New York City.

DEAR MR. CALDWELL:

With regard to yours of the 19th, I have again looked at the radio law and the regulations, and I find nothing in them to warrant the arrangement that you suggest. 790 kilocycles is one of the frequencies set aside by the Commission for assignment to a particular zone. Therefore, if you assign WGY to this frequency after it has been transferred to Zone 5, either the latter zone is not getting a cleared channel to which it is entitled, or WGY is getting nothing at all.

It is still incomprehensible to me how you with your knowledge of radio matters, and your familiarity with the developmental work of our Company through WGY, as well as with your knowledge of the area which we cover exclusively, could have agreed to any such arrangement. WGY is certainly far more entitled to a cleared channel than several of the stations which you have placed ahead of it. For example, a station which is serving as the key station to a large chain can readily depend upon the chain for its distribution, and therefore does not require a cleared channel for its own relatively concentrated audience.

On my return to Schenectady I am called upon every few minutes for information regarding the Commission's ruling. Everyone feels that it is so unjust that it cannot be true. Protests of all kinds are being organized all through this part of the State as well as in Massachusetts and other adjoining States. It will be a tremendous storm when it breaks.

Please let me know at your earliest convenience when I can meet the Commissioners in Washington and lay the case before them. I should prefer to do this at first informally because I know that if a public hearing is called, Chambers of Commerce, radio trades associations, and newspapers all around here will insist upon coming along.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

MPR:T.

128 Federal Radio Commission, No. 85.

Copy.

September 25, 1928.

Mr. Martin P. Rice,
General Electric Company,
1 River Road,
Schenectady, N. Y.

DEAR MR. RICE:

Answering your inquiry as to the conditions of operation of the two General Electric broadcasting stations under your direction, WGY and KGO, assigned to channel 790 kilocycles by the new allocation:

It is the Commission's understanding that while this channel is assigned to the Fifth Zone and to KGO, there is nothing in any Commission regulation or order which will prevent you, as KGO's manager, from modifying KGO's operating time slightly so that both WGY and KGO may enjoy exclusive-channel operation, and each with a time schedule at least 90 per cent of its present operating hours. This can be accomplished as follows:

Station WGY operates throughout daytime, and during evening to 10 p. m.

Station KGO operates throughout daytime, stands by from Sunset to 7 p. m., and resumes operation from 7 p. m. throughout rest of night.

Since both stations are under your personal management, this schedule can be varied at will, from night to night, to conform to special features on either station.

Thus, if KGO stands by until 8 p. m., WGY may run until 11 p. m. The only restriction imposed by the Commission is that the two stations shall not operate simultaneously while the intervening distance is linked by darkness, (unless the two stations are later synchronized, in which case the remaining hour can be used simultaneously without interference.

In order that there may be no doubt in your mind that the schedule above is the understanding of a majority of the Commission, I have asked my associates to read and initial this statement, which should set at rest the misleading reports appearing that Station WGY was to be limited to "daylight" or "one-hour" operation.

You are undoubtedly aware that in its efforts to reduce interference and improve radio reception, under the difficult requirements of the equalizing law, the Commission has had to impose time-sharing and reduced schedules on many stations. In certain cities great 5000-watt stations are dividing time—even four and five to a wavelength. Several hundred stations have been reduced to half-time operation.

129 In the face of the severe restrictions thus imposed on many other broadcasters, the Commission feels sure that you will willingly cooperate toward better radio with a slight limitation of your own broadcasting hours, as above suggested,—arrangement made possible by sharing the 790-kilocycle channel between your own stations, with the aid of the three-hour time difference—rather than adding WGY onto one of New York State's hour exclusive channels, now occupied by WEAF, WJZ, WABC and WHAM, which would impose severe time-division on these New York exclusive channel stations, and deprive the public of at least one high-power transmitter 24 hours a day, (instead of one hour a day).

No one could be more appreciative than the members of the Commission of the splendid service which WGY has been rendering the listeners of central New York, nor of the contributions to the radio art made through this station. Personally, I regret that fifty clear channels were not set aside for high-power broadcasters, so that New York's proportion would have been sufficient to take care of all of her great stations. But with conditions as they are,

and all things considered, the Commission feels that the allocation as made, secures the greatest possible use for New York's facilities, even if at the cost of an hour's reduction of your operating time, which, I am sure, you will gladly concede, in the interest of a reallocation set-up that will bring improved radio to millions of listeners.

Vry truly yours,

O. H. CALDWELL,
Commissioner.

130 Federal Radio Commission, No. 86.

Copy.

September 25, 1928.

Radio Station WGY, General Electric Co.,
1 River Road,
Schenectady, N. Y.

(Attention Mr. M. P. Rice.)

Have forwarded letter outlining operating conditions giving Commission's understanding as promised. Stop. For informal conference requested, suggest Friday this week eleven o'clock, earlier days being occupied with short-wave hearings. Stop. Next week also available.

O. H. CALDWELL.

Day letter.
Charge: Federal Radio Commission.
(Official business.)
Sent —— —, ——. SWP.

Federal Radio Commission, No. 87.

131 Copy.

October 1, 1928.

Mr. Martin P. Rice,
Radio Station WGY,
Schenectady, N. Y.

DEAR MR. RICE:

Supplementing statement made to you by members of the Commission, as to the large number of stations it has been

necessary to put on half-time basis, if the public is to be restored good radio reception, I attach for your attention list of stations of *5000 to 50,000 watts,* (i.e., powers requiring cleared channels like WGY), which will *divide time* under the Re-Allocation.

This list is limited to large stations only and does not include 300 other stations of 1000 watts and less, which will be on a half-time or further time reduction.

You will note that nearly all of these 5000-to-50,000-watt transmitters listed can be permitted to operate only half-time or less, and that in some sections, certain great stations will be required to cut their schedules even to one-quarter time or some smaller fraction.

To impose such drastic time reduction has been the Commission's necessary but most unpleasant duty,—and certainly one little relished by myself, with my well established views that the Government should interfere as little as possible with private enterprise.

Yet, as you, with your long experience in radio, well know, only by so reducing the equivalent number of stations simultaneously on the air, can we rescue radio from the heterodyne confusion of the past two years, and open the road lanes to all our population, particularly to the great rural majority which needs radio most.

Of course, the severe time reductions, shown on this list averaging 50%, are in no way comparable with the slight concession of an hour or so a day asked of WGY, as an aid to the Commission in its difficult task of paring radio-broadcasting back to "good reception" conditions.

But this list of time-divisions by large stations illustrates the drastic steps that have been necessary, in carrying out the Commission's disagreeable duty in the listeners' interest,—an operation long demanded by the public, by Congress, and by the radio and electrical industry itself, and from which the industry will be the chief financial beneficiary in supplying a greatly expanded market.

Very truly yours,

O. H. CALDWELL,
Commissioner.

Broadcasting Stations of 5,000 *to* 50,000 *Watts Which Will Operate Part-Time Only, under the Reallocation Effective Nov.* 11.

			Power watts	Fraction of full-line operations
WLW	Cincinnati, O.	Crosley Radio Corp.	50,000	Half
WENR	Chicago, Ill.	Commonwealth Edison Co.	50,000	Two-sevenths
WOC	Davenport, Iowa	Palmer School	5,000	Half
WLS	Chicago, Ill.	Sears-Roebuck Co.	5,000	Five-sevenths
WHO	Des Moines, Ia.	Bankers Life Ins. Co.	5,000	Half
WJAZ	Chicago, Ill.	Zenith Radio Co.	5,000	One-seventh
WHT	Chicago, Ill.	Wm. Hale Thompson	5,000	One-seventh
WORD	" "	Peoples Pulpit Assn.	5,000	One-seventh
WAIU	Columbus, O.	Amer. Ins. Union	5,000	Half
WIBO	Chicago, Ill.	WIBO B/C Co.	5,000	Four-sevenths
WSAI	Cincinnati, O.	Crosley Radio Corp.	5,000	Half
KFAB	Lincoln, Neb.	Neb. Buick Co.	5,000	Three-sevenths
WBBM	Chicago, Ill.	Atlas Bros. Co.	10,000	Four-sevenths
WBAP	Fort Worth, Tex.	Carter Publications	50,000	Half
KTHS	Hot Springs, Ark.	Arlington Hotel	5,000	Half
KWKH	Shreveport, La.	W. K. Henderson	5,000	Half
WWL	New Orleans, La.	Loyola, University	5,000	Half
WHAJ	Louisville, Ky.	Courier Journal	10,000	Half
WWVA	Wheeling, W. Va.	W. Va. B/C Co.	5,000	Half
WFAA	Dallas, Tex.	Dallas News	50,000	Half

			Power watts	Fraction of full-line operations
KRLD	" "	KRLD, Inc.	10,000	Half
WBAL	Baltimore, Md.	Con. Gas & Elec. Co.	5,000	Half
WTIC	Hartford, Conn.	Travellers Life Ins. Co.	50,000	Half
WBT	Charlotte, N. C.	C. C. Caddington	5,000	Half
WPTF	Raleigh, N. C.	Durham Life Ins. Co.	5,000	Half
WPG	Atlantic City, N. J.	Atlantic City	5,000	Three-quarters
WLWL	New York City	Paulist Fathers	5,000	One-quarter
KFKB	Milford, Kan.	Dr. Brinkley	5,000	One-quarter
WADI	Auburn, Ala.	Alabama Polytech	5,000	Half
WJAX	Jacksonville, Fla.	City of Jacksonville	5,000	Half
KEX	Portland, Ore.	Western B/C Co.	5,000	Half
KOB	State College, N. M.	College of Agriculture	10,000	Half
WRR	Dallas Tex.	City of Dallas	5,000	Half
WOAI	San Antonio, Tex.	Southern Equip. Co.	5,000	Half
WKBW	Buffalo, N. Y.	Churchill Evangel. Assn.	5,000	Half
KFJF	Okla. City	Nat'l Radio Mfg. Assn.	5,000	Half
WRUF	Gainesville, Fla.	Univ. of Fla.	5,000	Half
WBAW	Nashville, Tenn.	Waldrum Drug Co.	5,000	Half
WLAC	" "	Life Ins. Co.	5,000	Half
WOWO	Ft. Wayne, Ind.	Main Auto Supply Co.	5,000	Four-sevenths
KTNT	Muscatine, *Oa*.	Norman Baker	5,000	One-seventh
WCBD	Zion, Ill.	Wilbur Glenn Voliva	5,000	One-seventh
WMBI	Chicago, Ill.	Moody Bible Inst.	5,000	One-seventh

Federal Radio Commission, No. 89.

133 Copy.

October 2, 1928.

Mr. Martin P. Rice,
Manager of Broadcasting,
General Electric Co.,
1 River Road,
Schenectady, New York.

MY DEAR MR. RICE:

As you are already aware the 790 kilocycle channel has been allocated to the Fifth Zone and Broadcasting Station KGO will be given permission to operate upon the same. The Commission have also authorized the operation of Broadcasting Station WGY upon this same channel during daylight hours, it being the belief of the Commission that no interference will result from the simultaneous operation of Station KGO and WGY during daylight hours at Oakland.

Inasmuch as your Company own both of the stations herein referred to, and inasmuch as you are desirous of operating Station WGY after sunset in California, you are advised that so far as I am personally concerned it will be entirely satisfactory to me if you close your station in Oakland from 5 to 7 p. m. each day permitting Station WGY to operate during these two hours, which would be from 8 to 10 p. m. in Schenectady.

You will of course appreciate the fact that it is not within my power to give away that which belongs to the Fifth Zone and also that my interests are particularly in the California Station, but under the circumstances I believe that there will be no complaints made by the public and that such an arrangement will prove to be very beneficial to your Station at Schenectady, and will perhaps interfere but little with the operation of the Oakland Station. Of course if the Oakland Station objected, then my attitude would be entirely different, but assuming that such an arrangement would be entirely satisfactory to them, then may I re-

assure you of my willingness to support and endorse this time schedule.

Yours very truly,

HAROLD A. LAFOUNT,
Commissioner.

HAL/ms.

Federal Radio Commission, No. 91.

134 Copy.

General Electric Company, 1 River Road, Schenectady, N. Y.

October 4, 1928.

Hon. O. H. Caldwell,
Federal Radio Commission,
Washington, D. C.

DEAR MR. CALDWELL:

Referring to yours of October 1st and telephone conversation, I cannot see that the list of part-time stations accompanying your letter has any important bearing on the WGY matter.

You call it a list of stations of 5000 to 50,000 watts, but none of these stations is licensed to broadcast at 50,000 watts. On the same basis, WGY should be referred to as a 150,000 watt station, which, considered solely on the basis of rating, is in a class by itself, but there are other reasons why the list you submit is not relevant.

All but six of the stations are in districts adequately served by at least one other station. With two exceptions it is not a list of great stations at all. None of them ranks with WGY in power, in priority, in developmental contribution to radio, or in service to the public.

You will never improve radio reception for the public by shutting down or crippling the country's best broadcasting stations, and yet, if I read your letter correctly, you appear to feel that because your list of stations have been assigned to half-time or less, WGY should also accept some cut. The argument is entirely illogical as I believe your own knowledge of the situation must tell you. Putting WGY on part-time renders no service to listeners, but it deprives about

three million people in cities and rural districts of their most dependable programs.

You repeatedly refer to the slight concession asked of WGY. Conformance to the Commission's regulations would result in cancelling 50 per cent of WGY's program hours, and the adoption of the irregular suggestion made by the Commission with regard to WGY and KGO would result in the cancellation of approximately 35 per cent of the broadcasting now regularly scheduled over KGO, and would reduce the evening broadcasting of WGY approximately 25 per cent during the winter.

I am hoping, Mr. Caldwell, that you can clear your mind of questions of station ownership and other matters not in the law or in the regulations so that you may focus clearly on the question of public interest, convenience and necessity. Then, I am sure you will not find the allocation problem such a difficult or disagreeable one.

Very truly yours,

(Signed) MARTIN P. RICE,

Manager of Broadcasting.

MPR:T.

Federal Radio Commission, No. 92.

135 Copy.

Form No. 13.

Department of Commerce, Received Oct. 6, 1928, Radio Division.

Station License File No.: 264.

(To be filled in by the Federal Radio Commission:)

Call Letters: —. Frequency: —. Power: —. Official Number: —.

1-M-B-45.

Federal Radio Commission, Oct. 8, 1928.

United States of America, Federal Radio Commission.

Application for Modification of Station License.

(*Submit in duplicate to District Supervisor of Radio in charge of district in which station is located. Swear to one copy.*)

To the Federal Radio Commission:

1. Name of applicant: General Electric Company.

2. Post office address: State, New York; City, Schenectady; Street, River Road; Number, No. 1.

3. Nature of Modification:

Terms of reallocation plan.

A. Frequency: 790 Kcs.

B. Power: 25,000 (50,000 exper'l) Watts.

C. Hours of operation: Until sunset Pacific Coast Station KGO.

D. Location of transmitter: So. Schenectady.

E. Location of main studio: International General Electric building, Schenectady.

F. Call letters: WGY.

G. .....

Modification requested.

A. Frequency: 790 Kcs.

B. Power[1]: 150,000 Watts.

C. Hours of operation: Full-time.

D. Location of transmitter: So. Schenectady.

E. Location of main studio: International General Electric building, Schenectady.

F. Call letters[2]: WGY.

G. .....

[1] If construction of a new transmitter is contemplated, application for construction permit must be filed.

[2] Call letters are designated by the Secretary of Commerce. Any request for change will be submitted to him by the Commission.

---

136 4. How will the granting of the application serve public interest, convenience, or necessity? ——.

5. The applicant's last application for a station license is to be considered as part of this application, and the truth of the statements therein contained is hereby reaffirmed except in so far as the contrary expressly appears in this application.

6. The applicant waives any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise,

and requests a station license in accordance with this application.

Dated this 4th day of October, 1928.

GENERAL ELECTRIC COMPANY,
Applicant.

A. D. MARSHALL.
Asst. Secretary.

STATE OF NEW YORK,
County of Schenectady, ss:

A. D. Marshall, being first duly sworn, upon his oath deposes and says that he is the (If applicant is not an individual, insert "agent of") Agent of above-named applicant and that the statements in the foregoing application are true of his own knowledge, except as to such statements as are therein stated to be on information and belief, and as to such statements applicant believes them to be true.

A. D. MARSHALL.

Subscribed and sworn to before me this 4th day of October, 1928.

ARTHUR K. WILLEY,
Notary Public.

137 4. How will the granting of the application serve public interest, convenience, or necessity?

WGY has broadcast on a wavelength of 379.5 meters (790 kilocycles) since May 21, 1923, since which time this wavelength has been maintained as a cleared channel.

WGY serves an area in New York, Vermont, Massachusetts, and New Hampshire which depends almost exclusively on this station for broadcast service. The population within a range of sixty miles of WGY is approximately 1,000,000. Within a range of one hundred miles there is a population of 2,440,000 to many of which WGY supplies the most dependable program. The people in this area are much more dependent upon radio for their general information and entertainment than the people in the large metropolitan centers.

General Electric Company has made many contributions to the development of radio science and industry through WGY, and this station stands for scientific progress and development. During the period when the Department of

Commerce recognized developmental broadcasting stations, WGY was one of the three stations licensed in this class. The improvements first demonstrated through WGY have been incorporated in the regular operations of many of the better broadcasting stations throughout the country.

The programs of WGY have included the best in music, entertainment, statesmanship, economics, instructions, and religion. The reports on weather, markets and stocks have been of inestimable value to the agriculturalist and the business man. The broadcasting in co-operation with the State Department of Health and the Department of Agriculture have constituted a real service.

WGY's programs on short waves are not only regularly received by hundreds of listeners throughout the United States, but are also heard daily in many foreign countries. The newspapers and magazines of the British Isles, South Africa, Australia, and South America regularly print WGY's programs. This broadcasting is a factor in promoting international understanding and goodwill.

In the recent reallocation, WGY's wavelength (790 kc.) was transferred to the Pacific Coast as one of the eight cleared channels assigned to Zone 5. Order No. 40 specifies that such assignments connote periods of full time operation, that is to say, 24 hours daily, and every allocation of a frequency to a particular zone is to be considered as carrying with it an assignment of full-time operation on that frequency to that zone.

No other wavelength has been assigned to WGY to replace the wavelength transferred to Zone 5 for 24-hour operation. However, in the list of stations under the new reallocation, WGY has been designated a limited station to operate on the 790 kilocycle frequency with the added note that such stations will not be permitted to operate during the evening hours simultaneously with other stations assigned to the same frequencies.

138 Overlooking for the time being our property and priority right, we believe that the transfer of WGY's wavelength to the Pacific Coast without replacing it by an equally satisfactory cleared channel will not serve public interest, convenience or necessity.

In a letter from Commissioner O. H. Caldwell to Martin P. Rice, dated Washington, September 25th, and initialled

by Commissioners Pickard, Lafount and Sykes, the suggestion is made that slight modifications in the schedule of KGO and WGY would enable both of these stations to enjoy exclusive channel operation. The definite suggestion is that KGO stand by from sunset until 7:00 p. m. or 8:00 p. m. and the WGY sign off at 10:00 p. m. or 11:00 p. m. This suggestion would deprive Zone 5 of approximately 35% of the broadcasting now regularly scheduled over KGO, and it would reduce the evening broadcasting of WGY approximately 25% during the winter. The suggestion therefore cannot in any sense be considered as a slight modification. Moreover, it does not conform to the equalization plan allocating eight cleared channels to each zone for the wavelength assigned to Zone 5 is no longer a cleared channel if it is to be used during the evening by a station in another zone. It is evident therefore that either the fifth zone does not receive a cleared channel to which it is entitled, or if it does, WGY has no right to broadcast after sunset on the Pacific Coast.

The reallocation results in the assignment of four cleared channels to serve New York City, which also has the choice of at least ten other programs on the local or regional assignments. The public dependent upon WGY have no other reliable program.

In the public interest we request that WGY be permitted to continue broadcasting on its present frequency (790 kc.) as a cleared channel without restrictions as to time.

139 *Radio Supervisor's Report.*

October 5, 1928.

Application received: U. S. Supervisor of Radio, Department of Commerce, Received Oct. 5, 1928, New York, N. Y.

Remarks (state any pertinent facts): Forwarded for information of Radio Division and action of the Federal Radio Commission.

ARTHUR BATCHELLER,
U. S. Supervisor of Radio.

140 Copy.

JHD:EPW.

October 9, 1928.

Federal Radio Commission, No. 94.

Mr. Harry Sadenwater,
Radio Station WGY,
No. 1 River Road,
Schenectady, N. Y.

DEAR SIR:

Replying to your letter of October 4th, the average times of sunset for the months of the year at Oakland, California, are as follows in Pacific time:

January	5:17
February	5:48
March	6:18
April	6:47
May	7:17
June	7:32
July	7:28
August	7:00
September	6:16
October	5:32
November	5:01
December	4:56

These correspond of course to 8:17, 8:40, etc. in Eastern Standard time.

Respectfully,

J. H. DELLINGER,
Chief Engineer.

141 #281.

Minutes of the Federal Radio Commission.

Federal Radio Commission, No. 95.

October 12, 1928—10 o'clock a. m.

Present: Commissioners Robinson, Chairman, Sykes, Caldwell, Pickard, and Lafount; the Secretary, Chief Engineer, Captain Hill, and the General Counsel.

There was presented to the Commission a revision of the allocation presented to the Commission and approved at its meeting of September 8, 1928, said revised allocation listing all broadcasting stations and specifying the frequency, amount of power and hours of operation for each station. This revised allocation is set forth in a document numbered 282 entitled as follows:

"Revised List of Broadcasting Stations by Frequencies Effective 3 a. m., November 11, 1928, Eastern Standard Time."

Said revised allocation incorporates a number of changes with respect to frequency, amount of power and hours of operation; it also incorporates certain new stations and certain increases of power premised on the granting of construction permits now pending before the Commission.

On motion by Commissioner Sykes, which motion was duly carried, the Commission reconsidered the plan submitted by Commissioner Pickard at the meeting of October 8, 1928, for providing a cleared channel for Iowa, etc., and the action adopting said plan was rescinded.

Having examined said revised allocation, the Commission made the following findings:

1. With respect to each broadcasting station listed therein, the assignment of which is the same as is set forth in the allocation adopted on September 8th, the Commission reaffirms its finding that such assignments will serve public interest, convenience or necessity and are necessary to prevent interference between broadcasting stations.

2. With respect to each broadcasting station listed therein, the assignment of which is other than was listed in the allocation adopted on September 8th, the Commission finds that the new assignments will promote public convenience and interest and will serve public necessity, and are necessary to prevent interference between broadcasting stations.

142 3. With respect to each new broadcasting station listed therein, the Commission finds that the granting of pending applications for licenses of such stations will serve public interest, convenience, or necessity.

4. With respect to each station listed therein on the premise that a pending application for construction permit

will be granted, the Commission finds that the granting of such applications for construction permits will serve public interest, convenience, and necessity to the extent of the assignments indicated in the revised allocation.

5. With respect to all assignments of frequencies, authorized power, hours of operation specified in said revised allocation and with respect to all changes thereof imposed by said revised allocation, said assignments and said changes are necessary to carry out and to comply with the provisions of the Radio Act of 1927 and the provisions of Section 5 of the Act of Congress approved March 28, 1928, and with the provisions of General Order No. 40 of the Commission.

Commissioner Robinson dissented from the foregoing findings, explaining his action as being based on his opposition to the whole reallocation as distinguished from a policy of gradual changes and on his opposition to certain increases of power in connection with high-powered stations. He further explained that he did not want his vote to be understood as opposing any particular change in frequency, hours of operation or power, (other than with respect to such high-powered stations) as between said revised allocation and the allocation approved September 8th.

On motion by Commissioner Sykes, which motion was duly carried, the Commission set aside and rescinded so much of the allocation of September 8th as is inconsistent with said revised allocation.

Commissioners Robinson and Pickard presented to the Commission an arrangement between them affecting the Second and Fourth Zones whereby, under said revised allocation, the Second Zone received a favorable assignment on 920 kilocycles for a Detroit station, and the Fourth Zone borrowed the use of one-half time on a cleared channel for use by a Fourth Zone station. The latter portion of the arrangement was accomplished by the Fourth Zone being given the use of full time on 1020 kilocycles and the Second Zone being given the use of half time on 1160 kilocycles. By motion duly made and carried the Commission approved this arrangement.

143 On motion by Commissioner Sykes, which motion was duly carried, the Commission entered the following:

1. That to each broadcasting station listed in said revised allocation which has an application for renewal of its license pending before the Commission, a renewal license be issued for the frequency, power and hours of operation indicated in said revised allocation.

2. That to each broadcasting station listed in said revised allocation on the premise that a pending application for construction permit will be granted, a construction permit issue for the power and in accordance with the assignment indicated in said revised allocation.

3. That to each new station listed in said revised allocation on the premise that a pending application for license will be granted, license issue to such station in accordance with the assignment indicated in said revised allocation.

4. That each license or renewal license issued under the foregoing directions be so worded as to take effect on November 11th at the hour of 3 o'clock A. M., Eastern Standard Time and to terminate on January 31st, 1929 at the hour of 3 o'oclock A. M., Eastern Standard Time.

5. That each construction permit issued under the foregoing directions be so worded as to require completion of the construction of the transmitter within a period of 90 days from the date of issuance.

Commissioner Robinson did not participate in the foregoing directions because of his opposition to the reallocation as above explained.

CARL H. BUTMAN,
Secretary.

Federal Radio Commission, No. 96

#282

[fol. 144] Federal Radio Commission, Washington, D. C.

October 23, 1928.

Revised List of Broadcasting Stations by Frequencies Effective 3 A. M., November 11, 1928, Eastern Standard Time

(This list supersedes the list dated September 8, 1928.)

Call letters.	Location.	Owner.	Divides time with.	Power.
550 Kilocycles:				
WGR	Buffalo, N. Y.	Federal Radio Corp.		750
WEAO	Columbus, Ohio	Ohio State University	WKRC	750
WKRC	Cincinnati, O.	Kodel Radio Corp.	WEAO	500
KFUO	St. Louis, Mo.	Concordia Theo. Seminary	KSD	500
KSD	" " "	Pulitzer Pub. Co.	KFUO	500
KFDY	Brookings, S. D.	S. D. State College	KFYR-KFJM	500
KFYR	Bismark, N. D.	Hoskins-Meyer	KFDY-KFJM	500
KFJM	Grand Forks, N. D.	Univ. of N. Dakota	KFDY-KFYR	500
560 Kilocycles:				
WLIT	Philadelphia, Pa.	Lit Brothers	WFI	500
WFI	" "	Strawbridge & Clothier	WLIT	500
KFDM	Beaumont, Tex.	Magnolia Petroleum Co.		500
WMBF	Miami Beach, Fla.	Fleetwood Hotel Corp.		500
WNOX	Knoxville, Tenn.	Sterchi Brothers		1000
WOI	Ames, Iowa	Iowa State College	KFEQ	3500 dylt.
KFEQ	St. Joseph, Mo.	Scroggin & Co. Bank	WOI	2500 dylt.
KOAC	Corvallis, Ore.	Oregon State Agri. College		1000
KLZ	Dupont, Colo.	Reynolds Radio Co. Inc.		1000

570 Kilocycles:

WNYC	New York City	Dept. Plant & Structure	WMCA	500
WMCA	" " "	Greeley Sq. Hotel Co.	WNYC	500
WSYR	Syracuse, N. Y.	Clive B. Meredith		250
WSMK	Dayton, Ohio	Stanley M. Krohn, Jr.	WKBN	200
WKBN	Youngstown, Ohio	W. P. Williamson, Jr.	WSMK	500
WWNC	Asheville, N. C.	Chamber of Commerce		1000
KGKO	Wichita Falls, Tex.	Wichita Falls Brdcstg. Co.		250
WHA	Madison, Wis.	Univ. of Wisconsin	WPCC-WRM	750
WPCC	Chicago, Ill.	North Shore Cong. Ch.	WRM-WHA	500
WRM	Urbana, Ill.	Univ. of Illinois	WPCC-WHA	500

*See General Order # 42.

[fol. 145] 570 Kilocycles (Cont'd):

KUOM	Missoula, Mont.	State Univ. of Montana	KXA	500
KMTR	Hollywood, Calif.	KMTR Radio Corp.	KPLA	1000
KPLA	Los Angeles, Cal.	Pacific Develop. Radio Co.	KMTR	1000
KXA	Seattle, Wash.	America Radio Tel. Co.	KUOM	500

580 Kilocycles (Canadian Shared):

WTAG	Worcester, Mass.	Worcester Telegram Pub. Co.		250
WKAQ	San Juan, P. R.	Radio Corp. of P. R.		500
WOBU	Charleston, W. Va.	Charleston Radio Brdg. Co.	WSAZ	250
WSAZ	Huntington, W. Va.	McKellar Electric Co.	WOBU	250
KGFX	Pierre, S. D.	Dana McNeill		200 dylt.
KSAC	Manhattan, Kans.	Kansas State Agri. College	WSUI	500
WSUI	Iowa City, Iowa	State Univ. of Iowa	KSAC	500

590 Kilocycles:

WEEI	Boston, Mass.	Edison Elec. Illum. Co.		500
WEMC	Berrien Springs, Mich.	Emanuel Missionary College		1000 dylt.
WCAJ	Lincoln, Nebr.	Nebr. Wesleyan Univ.	WOW	500
WOW	Omaha, Nebr.	Woodmen of the World Life Ins. Assn.	WCAJ	1000
KHQ	Spokane, Wash.	Louis Wasmer, Inc.		1000

Federal Radio Commission, No. 96

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[fol. 144] Federal Radio Commission, Washington, D. C.

October 23, 1928.

Revised List of Broadcasting Stations by Frequencies Effective 3 A. M., November 11, 1928, Eastern Standard Time

(This list supersedes the list dated September 8, 1928.)

Call letters.	Location.	Owner.	Divides time with.	Power.
550 Kilocycles:				
WGR	Buffalo, N. Y.	Federal Radio Corp.		750
WEAO	Columbus, Ohio	Ohio State University	WKRC	750
WKRC	Cincinnati, O.	Kodel Radio Corp.	WEAO	500
KFUO	St. Louis, Mo.	Concordia Theo. Seminary	KSD	500
KSD	" " "	Pulitzer Pub. Co.	KFUO	500
KFDY	Brookings, S. D.	S. D. State College	KFYR-KFJM	500
KFYR	Bismark, N. D.	Hoskins-Meyer	KFDY-KFJM	500
KFJM	Grand Forks, N. D.	Univ. of N. Dakota	KFDY-KFYR	500
560 Kilocycles:				
WLIT	Philadelphia, Pa.	Lit Brothers	WFI	500
WFI	" "	Strawbridge & Clothier	WLIT	500
KFDM	Beaumont, Tex.	Magnolia Petroleum Co.		500
WMBF	Miami Beach, Fla.	Fleetwood Hotel Corp.		500
WNOX	Knoxville, Tenn.	Sterchi Brothers		1000
WOI	Ames, Iowa	Iowa State College	KFEQ	3500 dylt.
KFEQ	St. Joseph, Mo.	Scroggin & Co. Bank	WOI	2500 dylt.
KOAC	Corvallis, Ore.	Oregon State Agri. College		1000
KLZ	Dupont, Colo.	Reynolds Radio Co. Inc.		1000

570 Kilocycles:

WNYC	New York City	Dept. Plant & Structure	WMCA	500
WMCA	" " "	Greeley Sq. Hotel Co.	WNYC	500
WSYR	Syracuse, N. Y.	Clive B. Meredith		250
WSMK	Dayton, Ohio	Stanley M. Krohn, Jr.	WKBN	200
WKBN	Youngstown, Ohio	W. P. Williamson, Jr.	WSMK	500
WWNC	Asheville, N. C.	Chamber of Commerce		1000
KGKO	Wichita Falls, Tex.	Wichita Falls Brdcstg. Co.		250
WHA	Madison, Wis.	Univ. of Wisconsin	WPCC-WRM	750
WPCC	Chicago, Ill.	North Shore Cong. Ch.	WRM-WHA	500
WRM	Urbana, Ill.	Univ. of Illinois	WPCC-WHA	500

*See General Order #42.

[fol. 145] 570 Kilocycles (Cont'd):

KUOM	Missoula, Mont.	State Univ. of Montana	KXA	500
KMTR	Hollywood, Calif.	KMTR Radio Corp.	KPLA	1000
KPLA	Los Angeles, Cal.	Pacific Develop. Radio Co.	KMTR	1000
KXA	Seattle, Wash.	America Radio Tel. Co.	KUOM	500

580 Kilocycles (Canadian Shared):

WTAG	Worcester, Mass.	Worcester Telegram Pub. Co.		250
WKAQ	San Juan, P. R.	Radio Corp. of P. R.		500
WOBU	Charleston, W. Va.	Charleston Radio Brdg. Co.	WSAZ	250
WSAZ	Huntington, W. Va.	McKellar Electric Co.	WOBU	250
KGFX	Pierre, S. D.	Dana McNeill		200 dylt.
KSAC	Manhattan, Kans.	Kansas State Agri. College	WSUI	500
WSUI	Iowa City, Iowa	State Univ. of Iowa	KSAC	500

590 Kilocycles:

WEEI	Boston, Mass.	Edison Elec. Illum. Co.		500
WEMC	Berrien Springs, Mich.	Emanuel Missionary College		1000 dylt.
WCAJ	Lincoln, Nebr.	Nebr. Wesleyan Univ.	WOW	500
WOW	Omaha, Nebr.	Woodmen of the World Life Ins. Assn.	WCAJ	1000
KHQ	Spokane, Wash.	Louis Wasmer, Inc.		1000

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
600 Kilocycles (Canadian Shared):				
WTIC	Hartford, Conn.	Travellers Ins. Co.		250
(Temporary assignment pending completion of new 50,000 watt station.)				
WOAO	Baltimore, Md.	Monumental Radio, Inc.		250
WREC	Whitehaven, Tenn.	WREC, Incorporated	WOAN	500
WOAN	Lawrenceburg, Tenn.	Ch. of the Nazerene Vaughan School of Music	WREC	500
WEBW	Beloit, Wis.	Beloit, College		250 dylt.
KFSD	San Diego, Cal.	Airfan Radio Corp.	(1000 day)	500
KFBU	Laramie, Wyo.	Bishop N. S. Thomas		500
610 Kilocycles:				
WFAN	Philadelphia, Pa.	Keystone Brdcstg. Co.	WIP	500
WIP	Philadelphia, Pa.	Gimbel Bros. Inc.	WFAN	500
WQAF	Kansas City, Mo.	Kansas City Star Co.	WOQ	1000
WOQ	Kansas City, Mo.	Unity Sch. of Christianity	WDAF	1000
KFRC	San Francisco, Cal.	Don Lee, Inc.		1000
[fol. 146] 620 Kilocycles:				
WLBZ	Dover-Foxcroft, Mo.	Thompson L. Guernsey		500
WDBO	Orlando, Fla.	Rollins College, Inc.	WDAE	1000
WDAE	Tampa, Fla.	Tampa Pub. Co.	WDBO	1000
WTMJ	Brookfield, Wis.	The Journal Co.		1000
KGW	Portland, Ore.	Oregonian Pub. Co.		1000
KFAD	Phoenix, Ariz.	Electrical Equipment Co.		500
630 Kilocycles (Canadian Shared):				
WMAL	Washington, D. C.	M. A. Lesee Co.		250
WOS	Jefferson City, Mo.	State Marketing Bureau	WGBF-KFRU	500
KFRU	Columbia, Mo.	Stephens College	WOS-WGBF	500
WGBF	Evansville, Ind.	Evansville on the Air, Inc.	WOS-KFRU	500

640 Kilocycles:

WAIU	Columbus, Ohio	American Ins. Union	5000 ltd. time
*KFI	Los Angeles, Cal.	Earl C. Anthony, Inc.	5000 (C. P. 50000)

650 Kilocycles:

*WSM	Nashville, Tenn.	Nat'l Life & Acc. Ins. Co.	5000 (C. P. 50000)

660 Kilocycles:

*WEAF	Bellmore, N. Y.	Nat'l Brdcstg. Co. Inc.	50000
WAAW	Omaha, Nebr.	Omaha Grain Exchange	500 dylt.

670 Kilocycles:

WMAQ	Chicago, Ill.	Chicago Daily News, Inc.	5000

680 Kilocycles:

WPTF	Raleigh, N. C.	Durham Life Ins. Col	(C. P. 10000)
KPO	San Francisco, Cal.	Hales Bros. & The Chronicle	5000

690 Kilocycles (Canadian Exclusive):

[fol. 147] 700 Kilocycles:

*WLW	Mason, Ohio	Crosley Radio Corp.	50000
KFVD	Culver City, Cal.	W. J. & C. I. McWhinnie	250 ltd. time

710 Kilocycles:

WOR	Newark, N. J.	L. Bamberger & Co.	5000

720 Kilocycles:

WGN-WLIB	Chicago, Ill.	The Tribune Co.	15000

730 Kilocycles (Canadian Exclusive):

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
740 Kilocycles:				
WSB	Atlanta, Ga.	Atlanta Journal Co.		10000
KMMJ	Clay Center, Nebr.	The M. M. Johnson Co.		1000 ltd. time
750 Kilocycles:				
WJR-WCX	Pontiac, Mich.	WJR, Incorporated		5000
760 Kilocycles:				
*WJZ	New York, N. Y.	Radio Corp. of America		30000
WEW	St. Louis, Mo.	St. Louis University		1000 dylt.
770 Kilocycles:				
KFAB	Lincoln, Nebr.	Nebraska Buick Auto Co.	WBBM	5000
*WBBM-WJBT	Chicago, Ill.	Atlas Investment Co.	KFAB	25000
780 Kilocycles (Canadian Shared):				
WBSO	Wellesley Hills, Mass.	Babson's Statistical Organ, Inc.		100 dylt.
WSEA	Portsmouth, Va.	Va. Brdcstg. Co. Inc.	WTAR-WPOR	500
WTAR-WPOR	Norfolk, Va.	Reliance Elec. Co. Inc.	WSEA	500
WMC	Memphis, Tenn.	Memphis Comm. Appeal. Inc.		500
KELW	Burbank, Cal.	Earl L. White	KNRC	500
KNRC	Santa Monica, Cal.	Pickwick Brdcstg. Corp.	KELW	500
790 Kilocycles:				
*WGY	Schenectady, N. Y.	Gen. Elec. Co.		50000 ltd. time
KGO	Oakland, Cal.	Gen. Elec. Co.		10000
[fol. 148] **800 Kilocycles:**				
WSAI	Mason, Ohio	Crosley Radio Corp. (Lessee)		5000 ltd. time
WBAP*	Ft. Worth, Texas	Carter Pub. Inc.	KTHS	50,000
KTHS	Hot Springs, Ark.	Hot Springs Cham. of Commerce	WBAP	5,000 C. P.

810 Kilocycles:

WPCH	New York, N. Y.	Concourse Radio Corp.		500 dylt.
WCCO	Minneapolis, Minn.	Washburn-Crosby Co.		10,000

820 Kilocycles:

WHAS	Louisville, Ky.	The Courier Journal Co. & The Louisville Times Co.		10,000 C. P.

830 Kilocycles:

KOA	Denver, Colo.	General Electric Co.		12,500

840 Kilocycles (Canadian Exclusive):

850 Kilocycles:

KWKH	Kennonwood, La.	W. K. Henderson	WWL	20,000
WWL	New Orleans, La.	Loyola University	KWKH	5,000 C. P.
KFQZ	Hollywood, Cal.	Taft Radio & Brdcstg. Co. Inc.		1000 Ltd. time

860 Kilocycles:

WABC-WBOQ	New York, N. Y.	Atlantic Brdcstg. Corp.		5000

870 Kilocycles:

WLS	Crete, Ill.	Sears-Roebuck & Co.	WENR-WBCN	5000
WENR-WBCN*	Chicago, Ill.	Great Lakes Radio Brdcstg. Co.	WLS	5000

880 Kilocycles (Canadian Shared):

WQAN	Scranton, Pa.	Scranton Times	WGBI	250
WGBI	Scranton, Pa.	Scranton Broadcasters Incorporated	WQAN	250
WCOC	Columbus, Miss.	Crystal Oil Co.		500
KLX	Oakland, Cal.	Tribune Pub. Co.		500
KPOF	Denver, Colo.	Pillar of Fire, Inc.	KFKA	500
KFKA	Greeley, Colo.	Colo. State Teachers College	KPOF	500

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
[fol. 149] 890 Kilocycles (Canadian Shared):				
WJAR	Providence, R. I.	The Outlet Co.		250
WMMN	Fairmont, W. Va.	Holt Rome Novelty Co.		500 daylt. 250 night
WMAZ	Macon, Ga.	Mercer Univ.	WGST	500 daylt. 250 night
WGST	Atlanta, Ga.	Ga. Sch. of Tech.	WMAZ	500 daylt. 250 night
KGJF	Little Rock, Ark.	First Ch. of Nazarene		250
WNAX	Yankton, S. D.	Gurney Seed & Nursery Co. & Radio Apparatus Co.	KFNF-KUSD	500
KUSD	Vermillion, S. D.	Univ. of S. Dak.	WNAX-KFNF	500
KFNF	Shenandoah, Iowa	Henry Field Seed Co.	WNAX-KUSD	500
900 Kilocycles:				
WFBL	Syracuse, N. Y.	The Onondaga Co. Inc.	WMAK	750
WMAK	Martinsville, N. Y.	WMAK Brdcstg. System, Inc.	WFBL	750
WKY	Okla. City, Okla.	WKY Radiophone Co.		1000
WFLA-WSUN	Clearwater, Fla.	Clearwater Chamber of Comm. & St. Petersburg Chamber of Comm.		1000
WLBL	Stevens Point, Wis.	Wisc. Dept. of Markets		5000 daylt.
KHJ	Los Angeles, Cal.	Don Lee, Inc.		1000
KSEI	Pocatello, Ida.	KSEI Brdcstg. Assn.		250
KGBU	Ketchikan, Alaska	Alaska Radio & Service Co.		500
910 Kilocycles (Canadian Exclusive):				
920 Kilocycles:				
WWJ	Detroit, Mich.	The Detroit News		1000
KPRC	Houston, Tex.	Houston Printing Co.		1000
WAAF	Chicago, Ill.	Drovers Journal Pub. Co.		500 Dayl.
KOMO	Seattle, Wash.	Fisher's Blend Station, Inc.		1000

[fol. 150] 930 Kilocycles (Canadian Shared):

WIBG	Elkins Park, Pa.	St. Paul's P. E. Church		50 dylt.
WDBJ	Roanoke, Va.	Richardson-Wayland Elec. Corp.		500 daylgt 250 night
WBRC	Birmingham, Ala.	Birmingham Brdcstg. Co. Inc.		500
KGBZ**	York, Nebr.	George R. Miller	KMA	500 C. P.
KMA	Shenandoah, Ia.	May Seed & Nursery Co.	KGBZ	500
KFWM	Oakland, Calif.	Oakland Educational Soc.	KFWI	500
KFWI	San Francisco, Calif.	Radio Entertainments, Inc.	KFWM	500

940 Kilocycles:

WCSH	Portland, Maine	Congress Sq. Hotel Co.		500
WFIW	Hopkinsville, Ky.	The Acme Mills, Inc.		1000
KOIN	Portland, Ore.	KOIN, Inc.		1000
KGU	Honolulu, T. H.	Marion A. Mulrony		500
KFEL	Denver, Colo.	Eugene P. O'Fallon, Inc.	KFXF	250
KFXF	Denver, Colo.	Pikes Peak Brdcstg. Co.	KFEL	250

950 Kilocycles:

WRC	Washington, D. C.	Radio Corp. of America		500
KMBC–KLDS	Independence, Mo.	Midland Brdcstg. Co. & The Reorganized Ch. of J. C. of Latter Day Saints	WHB	1000 ltd. to 9 p.m.
WHB	Kansas City, Mo.	Sweeney Automobile School Co.	KMBC–KLDS	1000
KFWB	Los Angeles, Calif.	Warner Bros. Brdcstg. Corp.	KPSN	1000
KPSN	Pasadena, Calif.	Pasadena Star-News Pub. Co.	KFWB	1000
KGHL	Billings, Mont.	Northwestern Auto Supply Co. Inc.		500

**Stations KGES, KGBY, KGCH, KGEO & KGDW to combine as KGBZ.

[fol. 151] 960 Kilocycles (Canadian Exclusive):

970 Kilocycles:

WCFL*	Chicago, Ill.	Chicago Fed. of Labor	50,000 C. P. Ltd. Time
KJR	Seattle, Wash.	Northwest Radio Serv. Co.	5,000

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
980 Kilocycles				
KDKA*	Pittsburgh, Pa.	Westinghouse E. & M. Co.		50,000
990 Kilocycles:				
WBZ	E. Springfield, Mass.	Westinghouse E. & M. Co.	WBZA	15,000
WBZA	Boston, Mass.	Westinghouse E. & M. Co.	WBZ	500
1000 Kilocycles:				
KGFH	Glendale, Calif.	Frederick Robinson		250 Ltd.
WHO	Des Moines, Iowa	Bankers Life Company	WOC	5000
WOC	Davenport, Iowa	Palmer School of Chiropractic	WHO	5000
1010 Kilocycles (Canadian Shared):				
WQAO–WPAP	New York, N. Y.	Calvary Baptist Ch.	WHN-WRNY	250
WHN	New York, N. Y.	George Schubel	WQAO–WPAP–WRNY	250
WRNY	New York, N. Y.	Experimenter Pub. Co.	WQAO–WPAP–WHN	250
KGGF	Picker, Okla.	D. L. Connell, M. D.	WNAD	500
WNAD	Norman, Okla.	Univ. of Okla.	KGGF	500
WJBB	Sarasota, Fla.	Sarasota County Cham. of Commerce		250
KQW	San Jose, Calif.	First Baptist Church		500
1020 Kilocycles:				
KYW–KFKX	Chicago, Ill.	Westinghouse E. & M. Co.		5000
1030 Kilocycles (Canadian Exclusive):				
1040 Kilocycles:				
WKEN	Buffalo, N. Y.	Radio Station WKEN, Inc.		1000 Limited Time
[fol. 152] 1040 Kilocycles—Cont'd.:				
WKAR	East Lansing, Mich.	Michigan State College		500 DYLT
*WFAA	Dallas, Tex.	Dallas Morning News	KRLD	5,000 C. P. 50,000
KRLD	Dallas, Tex.	KRLD, Inc.	*WFAA	10,000

1050 Kilocycles:				
*WFBM	Indianapolis, Ind.	Indianapolis Power & Lt. Co.		25,000 C. P. (limited time)
KNX	Hollywood, Calif.	Western Broadcast Co.		5,000
1060 Kilocycles:				
WBAL	Baltimore, Md.	Cons. Gas Elec. Lt. & Power Co.		
		WTIC		5,000
WTIC	Hartford, Conn.	Travelers Ins. Co.		(C. P. 50,000*)
(Temporarily assigned to 600 Kc, 250 watts, pending completion of transmitter.)				
WJAG	Norfolk, Nebr.	Norfolk Daily News		500 (limited time)
KWJJ	Portland, Ore.	Wilbur Jerman		500 (limited time)
1070 Kilocycles:				
WAAT	Jersey City, N. J.			300 Day till 6 PM but not after sunset at Cleveland, Ohio
WTAM	Cleveland, Ohio	WTAM & WEAR, Inc.	WEAR	3,500
WEAR	Cleveland, Ohio	WTAM & WEAR, Inc.	WTAM	1,000
WCAZ	Carthage, Ill.	Carthage College		100 Dayl.
WDZ	Tuscola, Ill.	James L. Bush		100 Dayl.
1080 Kilocycles:				
WBT	Charlotte, N. C.	C. C. Coddington		C. P. 10,000
WCBD	Zion, Ill.	Wilbur Glenn Voliva	WMBI	5,000 (limited time)
WMBI	Chicago, Ill.	The Moody Bible Inst. of Chicago.	WCBD	5,000 (limited time)
[fol. 153] 1090 Kilocycles:				
KMOX-KFQA	St. Louis, Mo.	Voice of St. Louis, Inc.		5,000

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
1100 Kilocycles:				
WPG	Atlantic City, N. J.	Municipality of Atlantic City	WLWL	5,000
WLWL	New York, N. Y.	Missionary Society of St. Paul the Apostle	WPG	5,000 (6 PM to 6 PM)
KJBS	San Francisco, Calif.	Julius Brunton & Sons Co.		100 Daylit
1110 Kilocycles:				
WRVA	Richmond, Va.	Laurus & Bro. Co. Inc.		5,000 C
KSOO	Sioux Falls, S. Dak.	Sioux Falls Brdcstg. Assn.		1,000 (limited time)
1120 Kilocycles:				
WFBR	Baltimore, Md.	Baltimore Radio Show, Inc.		250
WBAK	Harrisburg, Pa.	Pennsylvania State Police		500 (Daylit)
WCOA	Pensacola, Fla.	City of Pensacola		500
WTAW	College Station, Tex.	Agr. & Mech. College of Texas	KUT	500
KUT	Austin, Tex.	University of Texas	WTAW	500
WISN	Milwaukee, Wis.	Evening Wisconsin Co.	WHAD	250
WHAD	Milwaukee, Wis.	Marquette University	WISN	250
KFSG	Los Angeles, Calif.	Echo Park Evang. Assoc.	KMIC	500
KMIC	Inglewood, Calif.	James R. Fouch	KFSG	500
KRSC	Seattle, Wash.	Radio Sales Corp.		50 (Daylit)
1130 Kilocycles:				
WOV	New York, N. Y.	International Brdcstg. Corp.		1,000 Daylt. to 6 PM
KFKB	Milford, Kans.	The KFKB Brdcstg. Assoc.		5,000 (Limited Time)
KSL	Salt Lake City, Utah	Radio Service Corp. of Utah		5,000 CP

[fol. 154] 1140 Kilocycles:

WAPI	Auburn, Ala.	Alabama Polytechnic Inst.	KVOO	5,000 C. P.
KVOO	Tulsa, Okla.	Southwestern Sales Corp.	WAPI	5,000 C. P.

1150 Kilocycles:

WHAM	Rochester, N. Y.	Stromberg-Carlson Tel. Mfg. Co.		5,000
KGDM	Stockton, Cal.	E. F. Peffer		50 Daylit

1160 Kilocycles:

WEAN	Providence, R. I.	The Shepard Co.		500 Daylit
WWVA	Wheeling, W. Va.	West Virginia Brdcstg. Corp.	WOWO	5,000
WOWO	Ft. Wayne, Ind.	Main Auto Supply Co.	WWVA	5,000

1170 Kilocycles:

WCAU	Philadelphia, Pa.	Universal Brdcstg. Co.		5,000 C. P.
KTNT	Muscatine, Iowa	Norman Baker		5,000 (limited time)

1180 Kilocycles:

WGBS	Astoria, L. I.	Gimbel Bros., Inc.		500 (limited time)
WJJD	Mooseheart, Ill.	Supreme Lodge of the World, Loyal Order of Moose		C. P. 20,000 (limited time)
KEX	Portland, Ore.	Western Brdcstg. Co.	KOB	5,000
KOB	State College, N. M.	N. M. College Agri. & Mech. Arts	KEX	10,000

1190 Kilocycles:

WRR	Dallas, Tex.	City of Dallas	WOAI	5,000 C. P.
WOAI	San Antonio, Tex.	Southern Equipment Co.	WRR	5,000

[fol. 155] 1200 Kilocycles (Local):

WABI	Bangor, Me.	First Universalist Church		100
WCAX	Burlington, Vt.	University of Vermont	WNBX	100
WEPS	Gloucester, Mass.	Matheson Radio Co. Inc.	WKBE	100

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
WIBX	Utica, N. Y.	WIBX, Inc.		100
WKBE	Webster, Mass.	K. & B Electric Co.	WEPS	100
WNBX	Springfield, Vt.	FIRST CONG. CHURCH Corp.	WCAX	10
WBBW	Norfolk, Va.	Ruffner Junior High School		100
WFBE	Cincinnati, O.	Parkview Hotel		100
WHBC	Canton, O.	St. John's Catholic Church		10
WLAP	Okalona, Ky.	Am. Brdcstg. Corp. of Ky.		30
WLBG	Petersburg, Va.	Robert Allen Gamble		100
WNBO	Washington, Pa.	John Brownlee Spriggs		15
WNBW	Carbondale, Pa.	Home Cut Glass & China Co.		5
WPRC	Harrisburg, Pa.	Wilson Printing & Radio Co.	WKJC	100
WKJC	Lancaster, Pa.	Kirk Johnson & Co.	WPRC	100
WQBJ	Clarkesburg, W. Va	John Raikes		65 C. P.
WABZ	New Orleans, La.	Coliseum Place Bapt. Church	WJBW	100
WJBW	New Orleans, La.	C. Carlson, Jr.	WABZ	30
WBBY	Charleston, S. C	Washington Light Infantry		75
WBBZ	Ponca City, Okla.	C. L. Carrell		100
WFBC	Knoxville, Tenn.	First Baptist Church		50
WRBL	Columbus, Ga.	R. E. Martin		50
KGCU	Mandan, N. D.	Mandan Radio Assn.		100
WJBC	LaSalle, Ill.	Hummer Furniture Co.	WJBL	100
WJBL	Decatur, Ill.	Wm. Gushard Dry Goods Co.	WJBC	100
WWAE	Hammond, Ind.	Dr. Geo. F. Courrier	WRAF	100
WRAF	LaPorte, Ind.	The Radio Club, Inc.	WWAE	100
WJAM	Waterloo, Ia.	Waterloo Brdcstg. Co.	KFJB	100
KFJB	Marshalltown, Ia.	Marshall Electric Co.	WJAM	100
WCAT	Rapid City, S. D.	S. D. State School of Mines		100
KGDY	Oldham, S. D.	J. Albert Loesch		15
WMAY	St. Louis, Mo.	Kingshighway Pres. Church	KFWF	100
KFWF	St. Louis, Mo.	St. Louis Truth Center, Inc.	WMAY	100
KFKZ	Kirksville, Mo.	Northeast Mo. State Teachers College		50
KGDE	Barrett, Minn.	Jaren Drug Co.		50
KGFK	Hallock, Minn.	Kittson County Enterprise		50
WCLO	Kenesha, Wis.	C. E. Whitmore	WRJN	100

WHBY	West DePere, Wis.	St. Norbert's College		50
WRJN	Racine, Wis.	Racine Broadcasting Corp.	WCLO	100
KFWC	Ontario, Calif.	James R. Fouch	KPPC	100
KPPC	Pasadena, Calif.	Pasadena Presbyterian Church	KFWC	50
KGEN	El Centro, Calif	E. R. Irey & F. M. Bowles		100
KMJ	Fresno, Calif.	The Fresno Bee		100
KSMR	Santa Maria, Calif.	Santa Maria Valley R. R. Co.		100
KWG	Stockton, Calif.	Portable Wireless Tel. Co.		100
KGEW	Ft. Morgan, Colo.	City of Ft. Morgan	KGEK	100
KGEK	Yuma, Colo.	Beehler Elec. Egirig. Co.	KGEW	50
KFHA	Gunnison, Colo.	Western State College of Colo.		50
KVOS	Bellingham, Wash.	L. Kessler		100
KGY	Lacey, Wash.	Saint Martin's College (50 day)		10 night

[fol. 156] 1210 Kilocycles:

WJBI	Redbank, N. J.	Robert S. Johnson	WCOH–WGBB–WINR	100
WGBB	Freeport, N. Y.	Harry H. Carman	WCOH–WJBI–WINR	100
WINR	Bayshore, N. Y.	Radiotel. Mfg. Co. Inc	WCOH–WJBI–WGBB	100
WCOH	Greenville, N. Y.	Westchester Brdcstg. Corp.	WJBL–WGBB–WINR	100
WOCL	Jamestown, N. Y.	A. E. Newton		25
WLCI	Ithaca, N. Y.	Lutheran Assn. of Ithaca		50
WFCI	Pawtucket, R. I.	Frank Crook, Inc.	WDWF–WLSI	100
WDWF–WLSI	Cranston, R. I.	Dutee W. Flint & The Lincoln Studies, Inc.	WFCI	100
WMAN	Columbus, O.	W. E. Hoskitt		50
WLBV	Mansfield, O	Mansfield Brdcstg. Assn.		100
WEBE	Cambridge, O	Roy W. Waller		100
WBAX	Wilkes Barre, Pa.	John H. Stenger, Jr.	WJBU	100
WJBU	Lewisburg, Pa.	Bucknell University	WBAX	100
WTAZ	Richmond, Va.	W. Reynolds, Jr. & T. J. McGuire	WMBG	150
WMBG	Richmond, Va.	Havens & Martin, Inc.	WTAZ	100
WSIX	Springfield, Tenn.	638 Tire & Vulcanizing Co.		100
WRBU	Gastonia, N. C	A. J. Kirby Music Co.		100
WJBY	Gadsden, Ala.	Electric Cons. Co.		50
WMBR	Tampa, Fla.	F. J. Reynolds		100
WRBQ	Greenville, Miss.	J. Pat Scully		100

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
WGCM	Gulfport, Miss.	Golf Coast Music Col., Inc.		100
KFDX	Shreveport, La.	First Baptist Church	KWEA	100
KWEA	Shreveport, La.	William E. Antony	KFDX	100
KDLR	Devils Lake, N. D.	Radio Electric Co.		100
KGCR	Brookings, S. D.	Cutler's Brdcstg. Service		100
KFOR	Lincoln, Nebr.	Howard A. Shuman		100
WHBU	Anderson, Ind.	Citizens Bank		100
KFVS	Cape Girardeau, Mo.	Hirsch Battery & Radio Co.	WEBQ	100
WEBQ	Harrisburg, Ill.	Tate Radio Co.	KFVS	50
WSBC	Chicago, Ill.	World Battery Co.	WEDC–WCRW	100
WCRW	Chicago, Ill.	Clinton R. White	WEDC—WSBC	100
WEDC	Chicago, Ill.	Emil Denemark, Inc.	WSBC–WCRW	100
WCBS	Springfield, Ill.	Harold L. Dewing & Chas. Messter	WTAX	100
WTAX	Streator, Ill.	Williams Hardware Co.	WCBS	50
WHBF	Rock Island, Ill.	Beardsley Spec. Co.		100
WIBA	Madison, Wis.	Cap. Times-Strand Theatre Sta.		100
WOMT	Manitowoc, Wis.	Mikadow Theatre		100
KGDP	Pueblo, Colo.	Pueblo Council, Boy Scouts of Amer.		10
KFEY	Kellogg, Idaho	Union High School		10
KPQ	Seattle, Wash.	Archie Taft & Louis Wasmer	KPCB	100
KPCB	Seattle, Wash.	Pacific Coast Biscuit Co.	KPQ	100
[fol. 157] 1220 Kilocycles:				
WCAD	Canton, N. Y.	St. Lawrence University		500 Daylt.
WCAE	Pittsburgh, Pa.	Kaufman & Baer Co.		500
WREN	Lawrence, Kansas	Jenny Wren Company	KFKU	1000
KFKU	Lawrence, Kansas	University of Kansas	WREN	1000

1230 Kilocycles:

WNAC-WBIS	Boston, Mass	The Shepard Stores		500	
WPSC	State College, Pa	Penn. State College		500	Daylt.
WSBT	South Bend, Ind	South Bend Tribune	WFBM-WCWK	500	
WFBM	Indianapolis, Ind	Indianapolis Power & Light Co	WCWK-WSBT	500	
WCWK	Ft. Wayne, Ind	Chester, W. Keen	WFBM-WSBT	500	
KYA	San Francisco, Calif	Pacific Brdstg. Corp		1000	
KFIO	Spokane, Wash	North Central High School		100	Daylt.
KFQD	Anchorage, Alaska	Anchorage Radio Club		100	

1240 Kilocycles:

WGHP	Fraser, Mich	Geo. Harrison Phelps, Inc		750	
KFQB	Ft. Worth, Tex	W. B. Fishburn, Inc	WJAD	1000	
WJAD	Waco, Tex	Frank P. Jackson	KFQB	1000	
WQAM	Miami, Fla	Elec. Equipment Co	WIOD	750	
WIOD	Miami Beach, Fla	Isle of Dreams Brdstg. Co	WQAM	1000	
WRBC	Valparaiso, Ind	Immanuel Lutheran Church		500	Daylt.

1250 Kilocycles:

WGCP	Newark, N. J	May Radio Brodstg. Corp	WODA-WAAM	500	
WODA	Paterson, N. J	Richard R. O'Dea	WAAM-WGCP	1000	
WAAM	Newark, N. J	WAAM, Inc	WODA-WGCP	250	
WLB-WGMS	Minneapolis, Minn	University of Minn	WRHM-KFMX-WCAL	1000	
WRHM	Fridley, Minn	Rosedale Hospital Co. Inc	WLB-KFMX-WCAL	1000	
KFMX	Northfield, Minn	Carleton College	WLB-WRHM-WCAL	1000	
WCAL	Northfield, Minn	St. Olaf College	WLB-WRHM-KFMX	1000	
KFON	Long Beach, Calif	Nichols & Warinner, Inc	KEJK	1000	
KEJK	Beverly Hills, Calif	R. S. Macmillan	KFON	500	
KXL	Portland, Ore	KXL Broadcasters, Inc	KFAU	500	
KFAU	Boise, Idaho	Frank L. Hill & C. G. Phillips. D/B as Boise Broadcast Station.	KXL	1000	

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
[fol. 158] 1260 Kilocycles:				
WLBW	Oil City, Pa	Petroleum Telephone Co		500
WJAX	Jacksonville, Fla	City of Jacksonville		1000
KWWG	Brownsville, Tex	Chamber of Commerce	KRGV	500
KRGV	Harlingen, Tex	Harlingen Music Co	KWWG	500
KOIL	Council Bluffs, Ia	Mona Motor Oil Co		0100
1270 Kilocycles:				
WRHF	Washington, D. C	American Brdcstg. Co		150 Dayl.
WEAI	Ithaca, N. Y	Cornell University		500 Dayl.
WASH	Grand Rapids, Mich	Baxter Laundries, Inc	WOOD	250
WOOD	Grand Rapids, Mich	Walter B. Stiles, Inc	WASH	500
WDSU	New Orleans, La	Joseph H. Uhalt		1000
KWLC	Decorah, Ia	Luther College	KGCA	50 Dayl.
KGCA	Decorah, Ia	Chas. W. Greenley	KWLC	50 Dayl.
KTW	Seattle, Wash	First Pres. Church	KFOA	1000
KFOA	Seattle, Wash	Rhodes Department Stores	KTW	1000
KFUM	Colorado Springs, Colo	W. D. Corley		1000
1280 Kilocycles:				
WCAM	Camden, N. J	City of Camden	WOAX-WCAP	500
WCAP	Asbury Park, N. J	Radio Industries Brdcstg. Co	WCAM-WOAX	500
WOAX	Trenton, N. J	Franklyn J. Wolff	WCAM-WCAP	500
WDOD	Chattanooga, Tenn	Chattanooga Radio Co., Inc		1000
WDAY	Fargo, N. D	WDAY, Inc	WEBC	1000
WEBC	Superior, Wis	Head of the Lakes Brdcstg. Co	WDAY	1000
KTAB	Oakland, Calif	Associated Broadcasters		500

[fol. 159] 1290 Kilocycles:

WNBZ	Saranac Lake, N. Y.	Smith & Mace		10 Daylt.
WJAS	Pittsburgh, Pa	Pittsburgh Radio Supply House		1000
KTSA	San Antonio, Tex	Lone Star Brdst. Co., Inc	KFUL	1000
KFUL	Galveston, Tex	Will H. Ford	KTSA	500
				1000 Daylt.
KLCN	Blytheville, Ark	Daily Courier News		50 Daylt.
KDYL	Salt Lake City, Utah	Intermountain Brdcstg. Corp		1000

1300 Kilocycles:

WBBR	Rossville, N. Y.	Peoples Pulpit Assn	WHAP-WEVD-WHAZ	1000
WHAP	New York, N. Y.	Defenders of Truth Assn. Inc.	WBBR-WEVD-WHAZ	1000
WEVD	Woodhaven, N. Y.	Debs Memorial Radio Fund	WBBR-WHAP-WHAZ	500
WHAZ	Troy, N. Y.	Rensselaer Poly. Inst	WBBR-WHAP-WEVD	500
KFH	Wichita, Kansas	Hotel Lassen	WIBW	1000
WIBW	Topeka, Kansas	C. L. Carrell	KFH	1000
KGEF	Los Angeles, Calif	Trinity Methodist Church	KTBI	1000
KTBI	Los Angeles, Calif	Bible Inst. of Los Angeles	KGEF	1000
KFJR	Portland, Ore	Ashley C. Dixon & Son	KTBR	500
KTBR	Portland, Ore	M. E. Brown	KFJR	500

[fol. 160] 1310 Kilocycles:

WKAV	Laconia, N. H	Laconia Radio Club		50
WEBR	Buffalo, N. Y.	H. H. Howell		100
WSMD	Salisbury, Md	Tom F. Little		100
WNBH	New Bedford, Mass	New Beford Brdcstg. Co		100
WNEW	Newport News, Va	Va. Brdcstg. Co., Inc		100
WRK	Hamilton, O	S. W. Doran & John C. Slade		100
WAGM	Royal Oak, Mich	Robert L. Miller	WBMH	50
WBMH	Detroit, Mich	Braun's Music House	WAGM	100
WFDF	Flint, Mich	Frank D. Fallain		100
WNAT	Philadelphia, Pa	Lennig Bros. Co	WFKD-WABY	100
WABY	Philadelphia, Pa	John Magaldi, Jr	WFKD-WNAT	50
WFKD	Frankford, Pa	Foulkrod Radio Eng. Co	WNAT-WABY	50
WHBP	Johnstown, Pa	Johnstown Auto Co	WEBG	100

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
1310 Kilocycles:				
WFBG	Altoona, Pa	William F. Gable Co	WHBP	100
WRAW	Reading, Pa	Ave. Radio & Elec. Shop	WGAL	100
WGAL	Lancaster, Pa	Lancaster Elec. Sup. & Cons. Co	WRAW	15
WSAJ	Grove City, Pa	Grove City College		100
WBRE	Wilkes-Barre, Pa	Louis G. Baltimore		100
WMBL	Lakeland, Fla	Benford's Radio Studios		100
WKBC	Birmingham, Ala	H. L. Ansley		10
WRBW	Columbia, S. C	Paul S. Pearce		100
KGHG	McGeohee, Ark	Charles W. McCollum		50
WTHS	Atlanta, Ga	Atlanta Tech. High School	WRBI	100
WRBI	Tifton, Ga	Kents Furn. & Music Store	WTHS	20
WOBT	Union City, Tenn	Tittsworth's Radio & Music Shop		15
WNBJ	Knoxville, Tenn	Lonsdale Baptist Church		50
KRMD	Shreveport, La	Robert M. Dean	KGGH	50
KGGH	Cedar Grove, La	Bates Radio & Elec. Co	KRMD	50
[fol. 161]				
KFPM	Greenville, Tex	The New Furniture Co		15
WDAH	El Paso, Tex	Trinity Methodist Church		100
KGFI	San Angelo, Tex	San Angelo Brdcstg. Co		100
KFPL	Dublin, Tex	C. C. Baxter		15
KFXR	Okla. City, Okla	Exchange Ave. Baptist Church		100
WKBS	Galesburg, Ill	Permil N. Nelson	WLBO	100
WLBO	Galesburg, Ill	Fred A. Trebbe, Jr	WKBS	100
WEHS	Evanston, Ill	Victor C. Carlson	WCLS-WKBB-WKBI-WHFC	100
WCLS	Joliet, Ill	WCLS, Inc	WEHS-WKBB-WKBI-WHFC	100
WKBB	Joliet, Ill	Sanders Bros	WEHS-WCLS-WKBI-WHFC	100
WKBI	Chicago, Ill	Fred Schoenwolf	WEHS-WCLS-WKBB-WHFC	50
WHFC	Chicago, Ill	Goodson & Wilson, Inc	WEHS-WCLS-WKBB-WKBI	100
KWCR	Cedar Rapids, Ia	Harry F. Paar	KFJY	100
KFJY	Ft. Dodge, Ia	C. S. Tunwall	KWCR	100

KFGQ	Boone, Ia	Boone Biblical College			10
WBOW	Terre Haute, Ind	Banks of Wabash Brdcstg. Assn			100
WJAK	Kokomo, Ind	J. A. Kautz (Kokomo Tribune)	WLBC		50
WLBC	Muncie, Ind	Donald A. Burton	WJAK		50
WIBU	Poynette, Wis	William C. Forrest			100
KFBK	Sacramento, Calif	Kimball-Upson Co			100
KFCB	Phoenix, Ariz	Nielson Radio Supply Co			100
KFIU	Juneau, Alaska	Alaska Elec. Light & Power Co			10
KGEZ	Kalispell, Mont	Flathead Brdcstg. Assn			100
KFXJ	Edgewater, Colo	R. G. Howell	KFUP		50
KFUP	Denver, Colo	Fitzsimmons General Hospital	KFXJ		100

[fol. 162] 1320 Kilocycles:

WADC	Akron, Ohio	Allen T. Simmons			1000
WSMB	New Orleans, La	Saenger Theatres, Inc. & Maison Blanche Co			750
KGIO	Idaho Falls, Ida	Jack W. Duckworth, Jr	(KGIQ)		250
KGIQ	Twin Falls, Ida	Stanley M. Soule	(KGIO)		250
KGHF	Pueblo, Colo	Curtis P. Ritchie & Joe E. Finch			250
KGHB	Honolulu, Hawaii	Radio Sales Co			250

1330 Kilocycles:

WDRC	New Haven, Conn	Doolittle Radio Corp	(WCAC)		500
WCAC	Storrs, Conn	Conn. Agri. College	(WDRC)		500
WTAQ	Eau Claire, Wis	Gillette Rubber Co	(KSCJ)		1000
KSCJ	Sioux City, Ia	Perkins Bros. Co	(WTAQ)		1000

1340 Kilocycles:

WSPD	Toledo, Ohio	Toledo Brdcstg. Co			500
KFPW	Siloam Springs, Ark	Rev. Lannie P. Stewart			50 dylt.
KMO	Tacoma, Wash	KMO, Inc	(KVI)		500
KVI	Nr. Des Moines, Wash	Puget Sound Radio Brdcstg. Co	(KMO)		1000

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
1350 Kilocycles:				
WBNY	New York, N. Y.	Baruchrome Corp	WMSG-WCDA-WKBQ	250
WMSG	" " " "	Madison Sq. Garden Brdcstg. Corp.	WBNY-WCDA-WKBQ	250
WCDA	" " " "	Italian Educational Brdcstg. Co	WBNY-WMSG-WKBQ	250
WKBQ	" " " "	Standard Cahill Co., Inc	WBNY-WMSG-WCDA	250
KWK	St. Louis, Mo	Greater St. Louis Brdcstg. Corp	(WIL)	1000
WIL	" " "	Mo. Brdcstg. Corp	(KWK)	1000
1360 Kilocycles:				
WBET	Medford, Mass	Boston Transcript Co	(WMAF)	500
WMAF	S. Dartmouth, Mass	Round Hills Radio Corp	(WBET)	500
WQBC	Utica, Miss	Utica Chamber of Commerce, Inc		300
WJKS	Gary, Ind	Johnson-Kennedy Radio Corp	(WGES)	500
WGES	Chicago, Ill	Oak Leaves Brdcstg. Corp., Inc	(WJKS)	500
KFBB	Havre, Mont	Buttrey Broadcast, Inc	(KGIR)	500 dylt. 250 night
KGIR	Butte, Mont	Symons Brdcstg. Co	(KFBB)	250
KGB	San Diego, Calif	Southwestern Brdcstg. Corp		250
[fol. 163] 1370 Kilocycles—Continued:				
WMBO	Auburn, N. Y	Radio Service Lab's		1000
WSVS	Buffalo, N. Y	Seneca Vocational School		50
WCBM	Baltimore, Md	Hotel Chateau		100
WEAM	Plainfield, N. J	W. J. Buttfield	WIAD	100
WBBL	Richmond, Va	Grace Covenant Pres. Church		100
WHBD	Bellefontaine, O	First Pres. Church		100
WJBK	Ypsilanti, Mich	Ernest G. Goodwin	WIBM	50
WIBM	Jackson, Mich	C. L. Carrell	WJBK	100
WRAK	Erie, Pa	C. R. Cummins		50
WIAD	Philadelphia, Pa	Howard R. Miller	WEAM	100
WJBO	New Orleans, La	Valdemar Jenson		100

1370 Kilocycles—Continued:

WHBQ	Memphis, Tenn	Brdcstg. Station WHBQ, Inc		100
WRBT	Wilmington, N. C	Wilmington Radio Asso		50
KGFG	Okla. City, Okla	Faith Tabernacle Assn., Inc	KGCB	50
KGCB	Enid, Okla	Wallace Radio Inst	KGFG	100
KGCI	San Antonio, Tex	Liberto Radio Sales	KGRC	100
KGRC	San Antonio, Tex	Eugene J. Roth	KGCI	100
KFJZ	Ft. Worth, Tex	Henry Clay Allison		100
KGKL	Georgetown, Tex	M. L. Cates		100
KFLX	Galveston, Tex	George Roy Clough		100
WFBJ	Collegeville, Minn	St. Johns University		100
KGDA	Dell Rapids, S. D	Home Auto Co		15
KWKC	Kansas City, Mo	Wilson Duncan Brdcstg. Co	KGBX	100
KGBX	St. Joseph, Mo	Foster-Hall Tire Co	KWKC	100

[fol. 164] 1370 Kilocycles—Continued:

KGAR	Tucson, Ariz	Citizens Pub. Co		100
KFUR	Ogden, Utah	Peery Building Co		50
KOH	Reno, Nevada	Jay Peters, Inc		100
KZM	Hayward, Calif	Leon P. Tenney	KRE	100
KRE	Berkeley, Calif	First Cong. Church	KZM	100
KGER	Long Beach, Cali'	C. Marwin Dobynes		100
KFBL	Everett, Wash	Leese Bros	KVL	50
KFEC	Portland, Ore	Meir & Frank Co	KFJI	100
KVL	Seattle, Wash	Arthur C. Baily	KFBL	100
KFJI	Astoria, Ore	George Kincaid	KFEC	50
KGFL	Raton, N. M	Lamont A. Hubbard		50
KGGM	Albuquerque, N. M	Jay Peters		100

1380 Kilocycles:

WCSO	Springfield, Ohio	Wittenberg, College	KQV	500
KQV	Pittsburgh, Pa	Doubleday-Hill Elec. Co	WCSO	500
KSO	Clarinda, Ia	Berry Seed Co	WKBH	1000
WKBH	LaCrosse, Wis	Callaway Music Co	KSO	1000

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
1390 Kilocycles:				
WHK	Cleveland, Ohio	Radio Air Service Corp		1000
KLRA	Little Rock, Ark	Arkansas Brdcstg. Co	KUOA	1000
KUOA	Fayetteville, Ark	University of Arkansas	KLRA	1000
KOW	Denver, Colo	Associated Industries, Brdcstg. Inc		500
KWSC	Pullman, Wash	St. College of Wash	KFPY	500
KFPY	Spokane, Wash	Symons Investment Co	KWSC	500
1400 Kilocycles:				
WCGU	Coney Island, N. Y	U. S. Brdcstg. Corp	WSGH–WSDA–WLTH–WBBC	500
WSGH–WSDA	Brooklyn, N. Y	Amateur Radio Spec. Co	WCGU–WLTH–WBBC	500
WLTH	Brooklyn, N. Y	Voice of Brooklyn, Inc	WCGU–WSGH	500
WLTH	Brooklyn, N. Y	Voice of Brooklyn, Inc	WCGU–WSGH–WSDA–WBBC	500
WBBC	Brooklyn, N. Y	Brooklyn Brdcstg. Corp	WCGU–WSGH–WSDA–WLTH	500
WBAA	LaFayette, Ind	Purdue University	WCMA–WKBF	500
WCMA	Culver, Ind	Culver Military Academy	WBAA–WKBF	500
WKBF	Indianapolis, Ind	Noble Butler Watson	WBAA–WCMA	500
[fol. 165] 1410 Kilocycles:				
WDEL	Wilmington, Del	WDEL, Inc		500
WSKC	Bay City, Mich	James E. Davidson		500
KGRS	Amarillo, Texas	Gish Radio Service	WDAG	1000
WDAG	Amarillo, Texas	J. Laurence Martin	KGRS	1000
WHDI	Minneapolis, Minn	Wm. Hood Dunwoody Industrial Inst.	WDGY–KFLV–WHBL	500
WDGY	Minneapolis, Minn	Dr. George W. Young	WHDI–KFLV–WHBL	500
KFLV	Rockford, Ill	A. T. Frykman	WHDI–WDGY–WHBL	500
WHBL	Sheboygan, Wisc	Press Pub. Co. & C. L. Carrell	KFLV–WDGY–WHDI	500

1420 Kilocycles:

KFXY	Flagstaff, Ariz	Mary M. Costigan		100
KGFJ	Los Angeles, Calif	Ben S. McGlashan		100
KFQU	Holy City, Calif	W. E. Riker	KGTT	100
KGTT	San Francisco, Calif	Glad Tidings Temple & Bible Inst.	KFQU	50
KFXD	Jerome, Idaho	Service Radio Co		50
KGHD	Missoula, Mont	Elmore Nash Brdcstg. Corp		50
KGCX	Vida, Mont	First State Bank of Vida		10
KFIF	Portland, Ore	Benson Polytechnic School		50
KMED	Medford, Ore	W. J. Virgin		50
KORE	Eugene, Ore	Eugene Broadcast Station		100
KKP	Seattle, Wash	City of Seattle Harbor Dept	KFQW	15
KFQW	Seattle, Wash	KFQW, Inc	KKP	100
KXRO	Aberdeen, Wash	KXRO, Inc		75
WLBH	Farmingdale, N. Y	Joseph J. Lombardi	WHPP-WMRJ	30
WHPP	New York, N. Y	Bronx Brdcstg. Co	WLBH-WMRJ	10
WMRJ	Jamaica, N. Y	Peter J. Prinz	WLBH-WHPP	10
WLEX	Lexington Mass	Lexington Air Station	WSSH (250 day)	100
WTBO	Cumberland, Md	Cumberland Electric Co		50
WSSH	Boston, Mass	Tremont Temple Baptist Ch	WLEX	100
WSRO	Middeltown, O	Harry W. Farhlander	WAAD	100
WIBR	Steubenville, O	Thurman A. Owings	WQBZ	50
WAAD	Cincinnati, O	Ohio Mechanics Inst	WSRO	25
WEDH	Erie, Pa	Erie Dispatch Herald		30
WMBC	Detroit, Mich	Mich. Brdcstg. Co. Inc		100
WKBP	Battle Creek, Mich	Enquirer News Co		50
WQBZ	Weirton, W. Va	J. H. Thompson	WIBR	60
KGFF	Alva, Okla	Earl E. Hampshire		100
KOCW	Chickasha, Okla	Chickasha Brdcst., Co		100
WKBT	New Orleans, La	First Baptist Church		50
KTAP	San Antonio, Tex	Robert B. Bridge		100
KTUE	Houston, Tex	Uhalt Electric		5
KFYO	Breckenridge, Tex	Kirksey Bros. Battery & Electric Co		100

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
[fol. 166] 1420 Kilocycles—Continued:				
KICK	Red Oak, Iowa	Atlantic Automobile Co., Red Oak Radio Corp. Lessee		100
WIAS	Ottumwa, Iowa	Poling Electric Co		100
KGCN	Concordia, Kans	Concordia Brdcstg. Co		50
WLBF	Kansas City, Kans	Everett L. Dillard		100
WMBH	Joplin, Mo	Edwin Dudley Aber		100
KGFW	Ravenna, Nebr	Otto F. Sothman		50
KFIZ	Fond du Lac, Wis	Fond du Lac Commonwealth Reporter		100
1430 Kilocycles:				
WICC	Easton, Conn	Bridgeport Brdcstg. Sta., Inc	WBRL	500
WBRL	Tilton, N. H	Booth Radio Laboratories	WICC	500
WMBS	Lemoyne, Pa	Mack's Battery Co	WCAH	500
WCAH	Columbus, Ohio	Commercial Radio Service Co	WMBS	250
WGBC	Memphis, Tenn	First Baptist Church (Sunday only)	WNBR	500
WNBR	Memphis, Tenn	John Ulrich	WGBC	500
1440 Kilocycles:				
WHEC–WABO	Rochester, N. Y	Hickson Electric Co., Inc	WMAC–WOKO	500
WMAC	Cazenovia, N. Y	Clive B. Meredith	WOKO–WHEC–WABO	500
WOKO	Mt. Beacon, N. Y	Harold E. Smith	WHEC–WABO–WMAC	500
WABF	Kingston, Pa	Markle Brdcstg. Corp	WRAX	250
WRAX	Philadelphia, Pa	Berachah Church, Inc	WABF	250
WNRC	Greensboro, N. C	Wayne M. Nelson		500
WTAD	Quincy, Ill	Ill. Stock Medicine Brdcstg. Corp	WMBD	500
WMBD	Peoria Hts., Ill	Peoria Heights Radio Lab	WTAD	500
KLS	Oakland, Calif	Warner Bros		250 dayl.

[fol. 167] 1450 Kilocycles:

WBMS	Union City, N. J.	WBMS Brcstg. Corp.	See Notes	250
WNJ	Newark, N. J.	Radio Investment Co.	" "	250
WIBS	Elizabeth, N. J.	New Jersey Brdcstg. Co.	" "	250
WKBO	Jersey City, N. J.	Camith Corp.	" "	250
WSAR	Fall River, Mass.	Doughty & Welch Elec. Co., Inc.		250

Note: WBMS, WNJ, WIBS and WKBO divide time with each other.

WJAY	Cleveland, Ohio	Cleveland Radio Brdcstg. Corp.	WFJC	500
WFJC	Akron, Ohio	W. F. Jones Brdcstg., Inc.	WJAY	500
KSBA	Shreveport, La.	W. G. Patterson		1000
WTFI	Toccoa, Ga.	Toccoa Falls Institute		500

1460 Kilocycles:

WTFF	Mt. Vernon Hills, Va.	Independent Pub. Co.		10000
KSTP	Westcott, Minn.	National Battery Brdcstg. Co.		10000

1470 Kilocycles:

WKBW	Amherst, N. Y.	Churchill Evang. Assn., Inc.		5000
KFJF	Oklahoma City, Okla.	National Radio Mfg. Co.		5000
WRUF	Gainesville, Fla.	Univ. Radio Service Co.		5000
KGA	Spokane, Wash.	Northwest Radio Service Co.		5000

1480 Kilocycles:

WJAZ	Mt. Prospect, Il.	Zenith Radio Corp.	WHT–WORD–WIBO	5000
WHT	Deerfield, Ill.	Radiophone Brdcstg. Corp.	WJAZ–WORD–WIBO	5000
WORD	Batavia, Ill.	Peoples Pulpit Assoc.	WJAZ–WHT–WIBO	5000
WIBO	Desplaines, Ill.	Nelson Bros. Bond & Mortgage Co.	WJAZ–WHT–WORD	5000

1490 Kilocycles:

WBAW	Nashville, Tenn.	Waldrum Drug Company	WLAC	5000
WLAC	Nashville, Tenn.	Life & Casualty Ins. Co.	WBAW	5000

[fol. 168] 1500 Kilocycles:

WMBA	Newport, R. I.	LeRoy Joseph Beebe		100
WLOE	Chelsea, Mass.	William S. Pote	WMES	100
WMES	Boston, Mass.	Mass. Educ'l. Society	WLOE	50

Revised List of Broadcasting Stations, etc.—Continued

Call letters.	Location.	Owner.	Divides time with.	Power.
1500 Kilocycles:				
WNBQ	Rochester, N. Y.	Gordon P. Brown		15
WNBF	Endicott, N. Y.	Howitt-Wood Radio Co.		50
WMBQ	Brooklyn, N. Y.	Paul J. Gollhofer	WLBX–WCLB–WWRL	100
			WMBQ–WCLB–WWRL	100
WLBX	Long Island City, N. Y.	John N. Brahy	WMBQ–WCLB–WWRL	100
WCLB	Long Beach, N. Y.	Arthur Faske	WMBQ–WLBX–WWRL	100
WWRL	Woodside, N. Y.	William H. Reuman	WMBQ–WLBX–WCLB	100
WTBQ	Wilmington, Del.	E. Brandt Boylan		100
WAFD	Detroit, Mich.	Albert B. Parfet Co.		100
WKBZ	Ludington, Mich.	K. L. Ashbacker		50
WMPC	Lapeer, Mich.	First Meth. Protestant Church		30
WCBA	Allentown, Pa.	B. Bryan Musselman	WSAN	100
WSAN	Allentown, Pa.	Allentown Call Pub. Co., Inc.	WCBA	100
WALK	Willow Grove, Pa.	Albert A. Walker	WHBW–WOO–WPSW	50
WOO	Philadelphia, Pa.	John Wanamaker	WHBW–WALK–WPSW	100
WHBW	Philadelphia, Pa.	D. R. Kienzle	WALK–WOO–WPSW	100
WPSW	Philadelphia, Pa.	Philadelphia School of Wireless Telegraphy	WALK–WHBW–WOO	50
WIBZ	Montgomery, Ala.	Alexander D. Trum		15
KGHI	Little Rock, Ark.	Berea Bible Class		100
WRBJ	Hattiesburg, Miss.	Woodruff Furn. Co.		10
WMBM	Memphis, Tenn.	Seventh Day Adv. Church		10
KGKB	Goldthwaite, Tex.	Eagle Pub. Co.		100
KGDR	San Antonio, Tex.	Joe B. McShane		100
[fol. 169] KGHX	Richmond, Tex.	Ft. Bend County School Board		50
WKBV	Brookville, Ind.	Knox Battery & Elec. Co.		100
KPJM	Prescott, Ariz.	Frank Wilburn		100
KWBS	Portland, Oreg.	Schaeffer Radio Co.		15
KWTC	Santa Anna, Calif.	Pacific Broadcast. Fed.	KFWO	100
KFWO	Avalon, Calif.	Lawrence Mott	KWTC	100
KFCR	Santa Barbara, Calif.	Santa Barbara Broadcasting Co.		100
KUJ	Long View, Wash.	Fred W. Lovejoy & R. W. Kerfoot		10

The minutes of the Federal Radio Commission of October 12, 1928, 2:30 o'clock p. m., show the following: (R. Doc. 97.)

"Present: Commissioners Robinson, Chairman, Sykes, Caldwell, Pickard, and Lafount, the Secretary, the Chief Engineer, Captain Hill, Commander Craven, and the General Counsel.

"The Commission having examined the following applications:

1-M-B-45, General Electric Company, W G Y

* * * * * * *

and it appearing that said applications are inconsistent with General Order Number 40, the Commission denied said applications.

"CARL H. BUTMAN,
"Secretary."

The following portions of the record are self-explanatory: (R. Docs. 98, 100, 101, 102, 103, 105, 106, 107, 108, 109, 110, 111 and 112).

170 Federal Radio Commission, No. 98.

#263.

Federal Radio Commission, Washington, D. C.

File No. 1-M-B-45.

In re Application General Electric Company, WGY, for Modification of License.

Notice of Denial of Application.

To General Electric Company, Schenectady, New York:

You are hereby notified that at a meeting held October 12, 1928, the Commission denied the above-described application.

CARL H. BUTMAN,
Dated October 17, 1928. *Secretary.*

171 Federal Radio Commission, No. 100.

Copy.

October 17, 1928.

Mr. Martin P. Rice,
Radio Station WGY,
Schenectady, N. Y.

DEAR MR. RICE:

Answer to your letter of last week has been delayed by the pressure of the Commission's hearings and other work, and my own desire to report to you as fully as possible the results of my continuing efforts to secure an increase in the number of clear channels for each Zone, so that WGY might have a full-time assignment on one of these.

Certainly I sympathize with the desire of yourself and my many good friends in the General Electric Company to have a separate exclusive channel for WGY, and it is my view that the Commission has made a grave mistake in not providing enough clear channels to take care of WGY in this manner. I consistently maintained this throughout the Commission's deliberation, pending the adoption of a plan, and have always urged the use of *fifty* clear channels as all the engineers unanimously advised. Some of the Commissioners, however, wanted 25, one none, and it was by the barest chance, after weeks of argument, that we were able to get 40 approved.

Since talking with you and receiving your letter, I have again had this matter of an additional clear channel for Zone 1 before the Commission several times, in your behalf. Such a re-assignment, I believe, would be in the public interest by enabling many more listeners to be served, than can ever be reached by the small stations on such channels. It would also enable us to solve some very difficult situations in the Fourth Zone.

At present, it seems impossible to get a Commission majority to approve such a proposal of even 45 clear channels, (one additional for each Zone). But I believe that some of my political-minded associates are beginning to realize the soundness of engineering advice, and that an accord on 45 clear channels may later be readily reached. In

fact, I am hoping that the full 50 clear channels, (2 additional per Zone) may be available by next June, so that WBAL, Baltimore, may continue full-time when WTIC's new 50,000 transmitter is completed.

As the public learns that it is better served by one great station like WGY, than by the two or three 500-watt stations which consume the same wavelength, and this realization is brought to members of Congress, (who have heretofore generally *opposed* large stations and as many exclusive channels as engineers want,) the other members of the Commission will undoubtedly reverse their views into favoring the large stations as the instruments of greatest public service.

172 I have carried my personal efforts for an extra clear channel for WGY as far as humanly possible at this time, and find that, momentarily, I am up against a stone wall.

Similarly, I have urged authorization of 150,000 watts power for your station, but without present success, however inevitable I believe this also to be, in the public interest,—as you and I have many times discussed.

Under all the circumstances, and with the sincere belief that both of these considerations of 150,000 power and full-time must eventually be granted WGY, I want to again ask your cooperation in helping meet the difficult situation before the Radio Commission and the public, by consenting to experiment even temporarily with the suggested schedule on 790 kilocycles.

Such willingness of your great company to cooperate for the general benefit of radio, would win much public approval throughout the whole country, and have a public-relations value, far outside of the range reached by WGY.

For my part, I can assure you that as long as I remain a Commissioner, I will diligently continue my efforts to bring about additional exclusive channels and higher power on such exclusive channels,—which, as I understand it, form the essence of your application in connection with WGY.

Sincerely yours,

O. H. CALDWELL,
Commissioner.

173 Federal Radio Commission, No. 101.

#288.

Federal Radio Commission, Washington, D. C.

October 18, 1928.

General Electric Company,
Schenectady, N. Y.

GENTLEMEN:

Attention Mr. Martin P. Rice.

Apparently there has been a misapprehension on your part as to the action taken by the Federal Radio Commission on your recent application for modification of your license, effective November 11, 1928. This misapprehension seems to have been conveyed to a large number of listeners of Station WGY.

In filing the application in question, you disregarded fundamental rules and regulations of the Commission, copies of which were mailed to you over a month ago. These rules and regulations have been brought to the attention of your representatives repeatedly during the past week and they have been told that there is no difficulty in the way of obtaining a hearing, provided you file a new application which is in compliance with the very reasonable requirements made by the Commission.

The rules and regulations in question are General Orders Nos. 40 and 42. Under General Order No. 40, the forty cleared channels have been divided equally among the five zones,—eight channels to each zone. The particular channels assigned to the first zone are 660, 710, 760, 860, 990, 1060, 1100 and 1150.

Instead of applying for one of these channels you applied for a channel assigned to the fifth zone, composed of the states of the far west. What you are really asking the Commission to do is to take away a channel from the fifth zone and give it to the first zone, in violation of the requirements of the Radio Act, as amended, with the inevitable result of breaking down the structure which the Commission has built up after months of work, careful study

and consultation with the leading radio engineers of the country.

In addition, your application requests a power assignment of 150,000 watts, although you must have known that, under the terms of General Order No. 42, the maximum power that the Commission will license on any channel is 25,000 watts, together with an additional 25,000 watts, the continuation of which will depend upon whether interference results.

In this respect, your application is asking a favor from the Commission which has not been and will not be granted to any station in the country, so long as General Order No. 42 is in effect.

To obtain a hearing, all you have to do is to file a new application specifying a channel which is available to the first zone, and amount of power which is permitted under General Order No. 42. With such an application on file, the Commission will be glad to accord you a hearing just as it would any other applicant. There is no necessity, however, for having a hearing as to the question of whether or not your present application complies with the rules and regulations of the Commission, since it is manifest from an inspection of the documents that it does not. You are, of course, free to attack the whole structure by questioning the validity of these regulations on appeal.

The Commission feels, however, that your listening public should be informed that if you do not obtain a hearing, it is due to your unwillingness to comply with rules that all other broadcasting stations are at present complying with.

Very truly yours,

(Signed) LOUIS G. CALDWELL,

General Counsel.

174 Federal Radio Commission, No. 102.

Copy.

General Electric Company.

General Office: Schenectady, N. Y., 1 River Road

Schenectady, N. Y., October 19, 1928.

Mr. Louis G. Caldwell,
Chief Counsel Federal Radio Commission,
Washington, D. C.

Dear Mr. Caldwell:

Referring to your letter of the 18th in which you say that WGY should have applied for one of the channels assigned to the first zone, I call your attention to the fact that the Commission's order, effective November 11th, assigns WGY to part-time on a channel which the same order transfers to Zone 5 (Pacific Coast).

Our application for modification asked that WGY be permitted to operate full-time on this channel as we have for the past five and a half years, or if this channel is not available, our application implied that we wanted some other equally good full-time channel on which we might continue to serve the public.

The power requested was the same as in the application for our present license. We have not changed our power specifications.

The application was written on the forms provided by the Commission, and we earnestly endeavored to make it conform to the requirements in every detail. You state that our application did not comply with your rules and you infer for that reason it would not be considered by the Commission. Disregarding for the moment the regularity of our application, let us consider the real issue.

For six and a half years WGY has reliably served the listening public in the States of New York, Massachusetts, Vermont, New Hampshire and in more distant States. Only nine stations in the whole United States have as long a service record as WGY. The area served by our station includes three million people—for many of whom it is the

only dependable station. More than a million dollars has been spent in building WGY, operating it, and supplying it with the latest equipment. It is without question the leading developmental station in the world. It has consistently furnished the listening public with the best
175 in music, drama, education, entertainment, religion, statesmanship, health, news and science.

For some reason incomprehensible to us, the Commission's order effective November 11th ignored all these facts, and WGY's wavelength was transferred to Zone 5. No substitute was provided, but WGY was told to operate as a part-time station on the same wavelength subservient to the requirements of the Pacific Coast. We asked for a modification of this order, but are told that we cannot be heard.

The Commission proposes to take our wavelength and deprive three million people of dependable broadcasting. We hope to find some way to bring the real issue to the attention of the Commission in such form as will receive their consideration, and we hope that this end can be accomplished without adopting your suggestion that we select some station in our own zone for attack and apply for its wavelength. We have no quarrel with any other station and do not feel that we should be compelled to start such a quarrel.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

MPR:T.

176 Federal Radio Commission, 103.

#298.

Federal Radio Commission, Washington, D. C.

October 23, 1928.

General Electric Company,
Schenectady, New York.

GENTLEMEN:

Attention Mr. Martin P. Rice.

I acknowledge receipt of your letter of Oct. 19. There are certain statements contained in it which, while I am

sure you did not intend them to be misleading, are open to misinterpretation by the public and I am therefore writing to call your attention to them.

When you state that the Commission proposes to deprive 3,000,000 people of dependable broadcasting, you of course, did not mean that you, station WGY, is to be shut down entirely or, indeed, in any respect except for a small curtailment in your hours of operation in the late evening. When you state that you have been told that you cannot be heard, you must have intended to say that the Commission was unwilling to grant you a hearing on an application for a cleared channel assigned to the Fifth Zone during hours when operation by your station would destroy reception of the Fifth Zone station's program over a large portion of the country because of heterodyne interference; you did not intend to say that the Commission had refused to entertain or grant a hearing on any application from you which complies with the rules and regulations of the Commission, and specifies a channel which is available to the First Zone. As you already know from previous communications from the Commission, you have only to make a proper application and a hearing will follow as a matter of course.

In your letter you complain that the Commission is in effect requiring you to attack another station. Is it not true that the application which you have already filed not only attacked another station, but if it had been granted would have resulted either in moving that other station away from the channel in question or else subjecting it to fatal heterodyne interference? If the Commission had required the Fifth Zone station to change to some other channel, then still other stations would have suffered. In effect, therefore, you are asking that other stations be deprived of broadcasting priviliges without a hearing.

177 The regulation of the Commission requiring a complaining station to specify what channel or other privilege it desires is not a new one, but has been in force since the Commission first began to hold hearings in the spring of 1927. The justice of this requirement is fundamental. The reason for it is not that the Commission desires to force any station to attack another but that, first, an applicant be required to state clearly (as he would have to in any law suit or legal controversy) what he is

applying for, and, secondly, that anyone who would be affected by granting the application be given a hearing before such action is taken. If a complaining station were not required to specify the channel it desires, then it would be seeking privileges from the Commission without granting stations who might be affected any opportunity of presenting their claims to their present assignment. As you know, the number of available channels is limited and everyone of them is being taxed to capacity because of the large number of persons desiring broadcasting licenses. No shift can be made in the frequency assignment of any one station without affecting other stations who either have to be curtailed or reassigned to other channels. I feel sure that you would not for a minute argue that the Commission should pursue such a course, no matter how small might be the stations affected, without giving them an opportunity to be heard in accordance with the guarantee of due process of law contained in our Federal Constitution.

Very truly yours,

(Signed) LOUIS G. CALDWELL,
General Counsel.

178 Federal Radio Commission, No. 105.

Copy.

File No. 1—R—B—1.

October 24, 1928.

General Electric Company,
120 Broadway,
New York, New York.

GENTLEMEN:

Attention Mr. J. W. Lewis, Asst. Secy.

Your letter of October 23rd enclosing an application for renewal of the WGY station license has just been referred to me for answer. Before the application is presented to the Commission for action, I find it necessary to explain to you certain considerations which apparently have not occurred to the persons who prepared the application.

On January 14, 1928, your company filed an application for a renewal of its existing license. This existing license by reason of several extensions expires on November 11, 1928, at 3 o'clock a. m. That application for renewal has already been acted upon by the Commission in connection with the new allocation and the terms and conditions of your new assignment are already well-known to you. Pursuant to the action of the Commission on that application for renewal, a license has already been issued to your company effective beginning November 11, 1928, and terminating on February 1, 1929 at 3 o'clock a. m.

I am at a loss to understand, therefore, the significance of this new application for renewal of license. In the present state of affairs, it can apply only to the license which expires on February 1, 1929. Under the last paragraph of section 9 of the Radio Act of 1927, no renewal can be granted more than 30 days prior to the expiration of the license which is renewed, consequently, the Commission cannot take any action on this new application until after January 2, 1929. I ask, therefore, that you advise us as to whether you want the new application considered by the Commission as an application for renewal for the period beginning February 1, 1929 (in which event it will be held in the Commission's files until the proper time), or whether, in view of the apparent misapprehension under which you are laboring, you wish to withdraw it.

I assume that what you really desire is a modification of your new frequency assignment under the allocation recently announced. As has already been explained to several of your representatives, both verbally and by letter, such an application must take the form of an application for modification of your new license. Special forms have been provided for this purpose and are familiar to you since you have already used them on one occasion.

179 The application for modification which you previously filed was, as has already been explained to you, denied because it did not comply with rules of the Commission, and in violation of those rules asked for full time on a channel assigned to the Fifth Zone and an amount of power vastly in excess of that permitted to any broadcasting station. A hearing would be useless on such an

application. If you will file an application for modification specifying a frequency which has been assigned to the First Zone (assuming that you desire full time on a cleared channel), the Commission will entertain the application and grant you a hearing. Every other broadcasting station is following this procedure and, I am glad to say, the overwhelming majority are adhering to the reasonable rules prescribed by the Commission without complaint. Your company is the only notable instance of a broadcasting station which persists in ignoring the Commission's rules and in asking that it be treated differently from other stations to such an extent that you want the Commission to take privileges from other stations and give*n* them to you without according the other stations a hearing.

In addition, the affidavits filed with your application for renewal indicate that a vast number of your listeners do not understand that WGY has not been deprived of the right to operate after sunset or during the evening, but has simply suffered a small curtailment which would permit it to operate up until 10 o'clock p. m., if the suggestions of the Commission were followed. I feel, therefore, that before permitting so many people to prepare affidavits and address letters to the Commission under a mistaken impression, you should advise these people of the real nature of the ruling.

Very truly yours,

LOUIS G. CALDWELL,
General Counsel.

LGC/ies.

180 Federal Radio Commission, No. 106.

Copy.

Federal Radio Commission, Oct. 24, 1928.

State of New York, Department of Law, Albany.

October 23, 1928.

Mr. Carl H. Butman,
Secretary Federal Radio Commission,
Nineteenth Street and Pennsylvania Avenue,
Washington, D. C.

DEAR SIR:

Enclosed is the Application of the People of the State of New York for evening broadcasting service through WGY. We hope the Commission will allow us to be heard at the same time as Station WGY, which we understand is preparing a new application to the Commission.

Very truly yours,

ALBERT OTTINGER,
Attorney-General.
By C. T. DAWES,
Solicitor-General.

CTD:HM.
Enc.

181 Copy.

To the Federal Radio Commission,
Washington, D. C.:

The People of the State of New York through their Attorney-General, Albert Ottinger, respectfully ask a hearing upon the allocation of radio frequencies to the first zone of which New York State is a part, more particularly in regard to the assignment of wave length and limitation of operating hours which affect our people now served by Station WGY at Schenectady. We request to be heard at the same time as the most recent application of WGY is set down before the Commission.

The Radio Act provides that all the people of the United States "are entitled to equality of radio broadcasting

service" and that the Federal Radio Commission "shall make a fair and equitable allocation of licenses, wave lengths, time for operation and station power to each of the state" (Radio Act, par. 3).

We believe, therefore, that a state and its people are entitled to be heard, just as a state aggrieved by a determination of the Secretary of Commerce (when that officer takes charge of the administration of the radio statute) is entitled to appeal and be heard before the Radio Commission (Radio Act, par. 5.)

Even without these statutory expressions of a state's right to participate in matters before the Commission, we think that the State of New York as a sovereign state may approach the Commission to protect the interests of so large a number of its citizens who are without opportunity to aid themselves (Georgia v. Tennessee Copper Co. 206 U. S. 230; New York v. New Jersey, 256 U. S. 301, 302; Wyoming v. Colorado, 259 U. S. 419).

Under date of September 11, 1928 the Commission has designated WGY as a limited or part time station, and has made it a daytime station only, thus cutting off from our citizens the real benefits of broadcasting service, those of the evening hours when people are in their homes.

You have given these evening hours to Montana and other states in the far west. Having done so, the Commission states that it will make no reallocation of wave
182 lengths to the different zones; that WGY cannot ask to have this situation remedied, but must seek to take away from other stations in the first zone the assignments which the Commission has given to those stations (Letter of Louis G. Caldwell, representing the Commission, to WGY, October 18, 1928). In other words, you have ruled that WGY cannot give evening broadcasting service unless some other station in New York is compelled to stop. What WGY formerly had has gone to the citizens of other less populated states, and all of central, northern and eastern New York and large portions of the States of Vermont, New Hampshire and Massachusetts must after November 11th obtain their evening service from New York City, or Boston, or not at all. We wonder if the Commission full- understood the result of this assignment, and

that stations in New York City and Boston *as a fact* cannot be heard with any quality of clearness throughout most of this vast territory with its great number of inhabitants having been served and accustomed for years to be served with evening broadcasting from WGY. It is a matter of degree, but of such a degree as to have further consideration in the interests of public necessity and convenience. The communities of Albany, Troy, Schenectady, Amsterdam, Utica and many other cities and all of the villages and country districts of the north and east and to the Canadian border are affected.

That the General Electric Company has another broadcasting station in California which it may operate during the evening hours (the attitude apparently taken by the Commission) is no answer to our public and indicates a distribution of wave lengths and station hour assignments from the standpoint of the operating stations and not on the ground of public convenience and necessity.

The section of New York we are interested in on this application had before the enactment of the Radio Act of 1927 at least a priority in service, and has an equal if not a prior right to continued evening service under the terms of the Act of 1927. Shutting off that service *entirely* for the benefit of new areas is, we believe, inequitable and not contemplated by the Federal Radio Act.

183 All determinations of the Commission, whether it be the allocation of wave lengths to the different zones or station assignments of frequencies and operating time are open for hearing before the Commission within the purview of the statute. The more far-reaching orders must be open to correction as well as the lesser orders, if Congress meant anything by the right to a hearing.

WGY of all the 1000 licensed broadcasting stations was fourth in point of time, and has operated in New York State on the wave length of 790 kilocycles ever since 1923.

Without in this application presenting all the facts which may develop upon a hearing, if one is accorded, it may incidentally be said that New York State has the greatest system of hospitals in the Union, many of which are located in the area served by WGY. Here, too, are federal hospitals. Appended to this application are pleas for WGY

service from the federal soldiers at the Veterans' Disabled Hospital at Tupper Lake, N. Y., many of whom are confined to their beds twenty-four hours of the day. They show the public necessity of evening service in the interest of the health of these men, over 350 in number. It will be taken away from them on Armistice day, November 11th.

The State Hospital for Consumptives at Raybrook, near Saranac and Lake Placid, has 300 patients, each room of the hospital being equipped with radio receiving apparatus used constantly for the patients with programs from WGY only.

Governmental activity of the State of New York at Albany is affected as well. The State Department of Health has heretofore protested to the Commission, to the end that it may maintain its public health talk service over WGY. The department has been using this broadcasting service through WGY since March 1922. Talks are given weekly and more than 325 of them have taken place. It is the most important health publicity in the State of New York and is carried on as state work in the interests of adult and child health protection and having its large influence in the control of epidemic diseases.

The Department of Agriculture and Markets has used WGY since March 15, 1922 for its Daily Market Report, and since 1925 for its weekly Crop and Market Summary. Crop Estimates also are sent out by the State, and WGY maintains an agricultural program through its
184 Farm Forum, all for the benefit of our rural sections served only by WGY.

New York State wants for its citizens the continued full time service of WGY or some other station equally as good. As matters now stand, about three millions of our people will be deprived of all evening service over WGY after November 11, 1928, and this for the education and entertainment of other sections of the country which years later have been introduced to broadcasting service.

We fully appreciate the great difficulties of the Commission in its administration of the Federal Radio Act. This application is made in no jealous spirit, but merely to request the continuance of the time-honored broadcasting service heretofore furnished three-fourths of the Empire

States. Later comers should give way before we are asked to do so.

October 23, 1928.

Respectfully submitted,

ALBERT OTTINGER,

Attorney-General of the State of New York,

Capitol, Albany, N. Y.

C. T. DAWES,

Solicitor General.

185 *Boys who Gave their Health for Their Country Plead to Have WGY Remain on Air Evenings.*

General Electric's Station is Only Dependable One Received at Disabled Veterans Hospital at Tupper Lake—Many of 350 Patients are Confined to Their Beds 24 Hours of the Day.

Are they going to take away our radio, our greatest source of recreation and pleasure?

From their hospital beds and wheel chairs, the wistful faces of 350 young soldiers in the United States Veterans Tuberculosis hospital camp at Tupper Lake, in the Saranac regions of the Adirondacks, are turned toward Washington with that question on their lips. They would like to ask it of the Federal Radio Commission as the day draws near when WGY, their sole source of regular diversion, will be lost to them through the ruling of the commission, making this a part time station on November 11.

No other radio station brings the outside world, with its gaiety, its progress, its pulse of life to these young men who offered their best to their country and now find that their country's government is about to snap the only link they have with the world which once counted them as part of it, but apparently no longer does so. From six to ten o'clock at night each Tupper Lake patient has his head-phone in place, listening to the great world outside as WGY brings it to him across the long stretches of forest and lake. It is the one thing that makes life livable to them in their enforced, indeterminate confinement; the one thing that keeps their minds tranquil until the night advances and they fall off to sleep many times with their head-phones still at their ears.

"Radio is a most important part in the lives of these boys up here fighting to regain their health," according to Dr. Richard L. Cook, medical officer in charge at the hospital. "It goes a long ways toward keeping them cheerful, keeping their minds occupied, a big problem in caring for this
186 disease. WGY is the one dependable station up here, and I hope nothing happens to interfere with a continuance of its many fine programs. If it did, it would be a severe blow to us."

Of the 350 boys in the hospital, a majority of them veterans of the world's war, a large number are confined to their beds 24 hours of the day. Reading, gazing at the blue sky and tree tops out of their windows, and radio, are their only recreation.

"Times hangs very heavy with us in this ward", Earl D. Kilburn of Watertown, one of several suffering from tuberculosis of the bones, states in his plea for WGY to be restored to its regular broadcast privileges. "I was in the 305th field artillery and did my bit. For the past two years I have been up here. During this time, I don't believe I have missed listening-in a single night to WGY. After supper is served to us, there is little else to do until lights are turned out at 10 o'clock.

"We willingly gave our most valuable asset, our health, to our government. Now can this same government take away our radio, our greatest pleasure and entertainment. If the men who are trying to take WGY off the air at night have any human sympathies, how can they do this? It can't be they know or realize how dependent we are on WGY".

A similar plea comes from Thomas J. Murphy, a Troy boy who has been a patient for three years, and confined to his bed in this same ward for the past year.

"I listen in every night and thoroughly enjoy the programs from WGY," he says, "Occasionally we get another station but reception is never good. WGY is the one station we are always sure to get any night of the year.

"I just can't get along without my radio. Please tell me what I can do to keep WGY on the air nights? We need radio so much up here".

Cleveland Palmer of Georgetown, who protests his failing eyesight with dark glasses and finds reading difficult,

also makes a pathetic plea for radio. His condition is such that he is confined to a room by himself. This deprives him of the companionship of other patients, making radio all the more important.

187 L. J. Nallon, of Ozone Park, N. Y., past commander of the Disabled American Veterans, an organization of more than 700,000 boys who were crippled in health or otherwise in the world war, has been a bed patient for a year and a half at the hospital. "Can the people who seek to deprive us of WGY realize how dependent we are on radio and on this station for a big part of our recreation? It must be they don't or they could never think of inflicting this hardship on us after we made so important a sacrifice as our health to our government.

"Radio is everything to us, it's half our sunshine, and I pray nothing will happen to take it away."

M. L. Lyons, present Commander of the organization, is also a patient at the hospital. "Radio, and by that I mean reception from WGY, is the outstanding relaxation and pleasure of these 350 boys. I can't see it taken away," he declared. "I have sent protests to the commission, and done everything I could think of. The interests and welfare of these disabled boys up here is my constant thought. If the men who have ruled WGY off the air evenings could but visit this hospital, I know they would reverse their order. They couldn't knowingly bring this punishment on these boys."

188 Federal Radio Commission, No. 107.

#309.

Federal Radio Commission, Washington, D. C.

October 25, 1928.

Hon. Albert Ottinger,
Attorney General, the State of New York,
Albany, New York.

DEAR SIR:

Your letter of October 23rd enclosing an application of the People of the State of New York for evening broadcast-

ing service through Station WGY has been referred to me for reply.

In the first place, I am authorized to state in behalf of the Commission that the Commission will welcome any intervention on the part of duly authorized representatives, such as yourself, of the people of your State, in any hearing that may be held which involves any New York station. There will be no difficulty, therefore, in the way of your appearing and presenting such evidence as may be material on the relevant issues which would, of course, include the service which the station has given, and another evidence tending to show that the privileges requested would serve public interest, convenience or necessity.

Unfortunately, Station WGY has not yet seen fit to comply with the rules of the Commission and file an application in accordance with those rules. As you will see by reference to the Radio Act, Section 5, approved March 28, 1928, the Commission is under very severe restrictions on the subject of equality of broadcasting privileges as between the five Zones. With respect to what is popularly known as "cleared channels" each Zone has been assigned eight specific frequencies. Naturally, with the law reading as it does, no Zone will *b*oluntarily relinquish one of these channels to another Zone where there are individuals within the first mentioned Zone who are in a position to a*w*ail themselves of the use of such a channel. If the Commission should increase the number of cleared channels (which must be done in such a way as to give each Zone the same increase) it could do so only at the expense of the remaining channels which now accommodate at least two and usually more than two stations in simultaneous full time operation. The result of an increased number of cleared channels would be further crowding and curtailment of the privileges of a large number of smaller stations, and the listening public of each such station would correspondingly suffer.

189 After long and careful study, in which the Commission had the best engineering advice available in the country, the Commission determined that under the present condition eight cleared channels per Zone would achieve the best results for the public. Its problem was then to ascertain which stations in each Zone should be as-

signed to these channels. The Commission does not claim that its choice of stations may not be free from error and is, therefore, anxious that any station which feels that it has not been fairly treated should have ample opportunity for hearing. Inasmuch as any change in assignment on the cleared channels means that some other station must give way to the applicant, the Commission feels that it is only just, in accordance with the guarantee of due process of law in the Federal Constitution, to accord the station or stations affected a hearing. Furthermore, you as an attorney realize that a satisfactory hearing is not possible without definite and clearcut issues. The Commission, therefore, requires each applicant to state precisely what broadcasting privileges he is applying for, and gives notice to the stations affected of the time and place for hearing so they may defend their present assignments. On the other hand, it does not grant a hearing to an applicant who fails to specify what privileges he is seeking or who seeks privileges which, under the regulations of the Commission, are not available to him or to any other applicant in his Zone.

The Commission regrets the erroneous impression which seems to be widespread among the listeners of WGY and which is reflected in the application of the People of the State of New York. Due to the difference in time between Schenectady and the Pacific coast, Station WGY will not become a daytime station in the sense in which that term seems to be understood by its listening public. The Commission has not "ruled that WGY cannot give evening broadcasting service". If WGY will follow the suggestion of the Commission, it may operate every evening until approximately 10 o'clock. This involves only a very slight curtailment of its former privileges because, as the records of the Commission show, WGY has seldom operated beyond 11 o'clock p. m., and frequently has shut down at an earlier hour.

I have dwelt at some length upon these considerations because I want you, as the representative of the people of your State to be acquainted fully with considerations which have determined the Commission- action. I also repeat the assurance which is contained in the opening part of this letter, to the effect that when and as soon as WGY makes

a proper application, a hearing will be held as a matter of course, and you will be given an opportunity to be heard.

Very truly yours,

(Signed) LOUIS G. CALDWELL,
General Counsel.

190 #311

Federal Radio Commission, No. 108

Federal Radio Commission, Washington, D. C.

October 25, 1928.

To all persons holding licenses to broadcast:

The Commission has found it necessary to make certain changes in the allocation announced September 10, 1928, effective November 11, 1928. These changes are due in part to the fact that extensive checking has revealed possibilities for deriving greater service to the public on certain channels and for more economical use of daytime hours; in part to the desire to remedy certain injustices to particular stations and certain sections of the country without the expense of a hearing; and in part to the necessity of correcting a few sources of interference. The changes thus made are incorporated in a revised list of stations, a copy of which accompanies this statement. The new list also incorporates such increases of power for existing stations as have been authorized by the Commission since the publication of the first list.

Licenses are being issued and mailed to the stations in accordance with the assignments indicated on the list. These licenses will be effective on November 11, 1928 at 3 o'clock a. m., Eastern Standard Time, and will expire on February 1, 1929, at the same hour.

All stations dissatisfied with their assignments under the revised allocation should follow the procedure set forth in the Commission's statement of September 11, 1928. Applications must be on forms provided by the Commission; these may be obtained from the Radio Supervisors or from the Secretary of the Commission. All such applications must specify what frequency, power, and/or hours of operation are desired by the applicant. No one application may

specify more than one frequency. If one applicant files two or more applications for different frequencies, only one of the applications will be set for hearing and consideration of the others will be postponed until the one heard is disposed of; if such an applicant fails to designate which application he desires to be heard first, the Commission will select such application.

FEDERAL RADIO COMMISSION,
By CARL H. BUTMAN,
Secretary.

Federal Radio Commission, No. 109.

191 Copy

General Electric Company.

General Office: Schenectady, N. Y.

1 River Road,
Schenectady, N. Y., October 26, 1928.

Mr. Louis G. Caldwell,
General Counsel Federal Radio Commission,
Washington, D. C.

DEAR MR. CALDWELL:

Refering to your letter of October 24th marked "attention Mr. J. W. Lewis, Assistant Secretary", the application for renewal of the WGY station license accompanying our letter of October 23rd was filed with the view of obtaining a renewal of our present license as we have not yet received any license whatever permitting us to broadcast after November 11th. As the time is drawing near, we must know on what basis WGY may be permitted to broadcast, and we therefore request action of the Commission on our application at its earliest convenience.

We particularly call the attention of the Commission to the following points in our application:

While our rated power is 150 Kilowatts, our application asks for the maximum power which the Commission is willing to assign to any station.

With regard to wavelength, we have asked for full-time on the wavelength we have employed for the past five and a

half years, but, recognizing the regulatory power of the Commission, we have offered to accept any other equally good full-time channel which the Commission may care to assign to us.

Our plea is based on public interest, convenience and necessity, and we ask only that the large listening audience for whom WGY is the most dependable station, be not deprived of this broadcast service, and we feel that the Commission's re-allocation plan must have been intended to equalize and improve broadcast reception and not to deprive a large section of the country of its most dependable programs.

192 With regard to your last paragraph in which you state that "WGY has not been deprived of the right to operate after sunset or during the evening, but has simply suffered a small curtailment which would permit it to operate up until 10:00 o'clock p. m. if the suggestions of the Commission were followed", will you kindly ask the Commission to consider this suggestion in the light of the following facts, and then, if possible, put it in the form of a definite regulation or order.

The Commission's orders effective November 11th transfer WGY's wavelength from the first zone to the fifth zone, and promise the people of the fifth zone the privilege of 24-hour operation on this wavelength. The orders further prohibit simultaneous operation of two stations like WGY and KGO after dark on the same wavelength. It therefore seems perfectly clear that WGY is prohibited from broadcasting after sunset in Oakland, California, by the Commission's own orders. However, Commissioner O. H. Caldwell wrote me on September 25th stating that I, as Manager of both KGO and WGY, may modify the broadcasting schedule so that both stations may enjoy exclusive chanel operation "and each with a time schedule at least 90 per cent* of its present operating hours." His letter definitely suggests that KGO should stand by from sunset to 7:00 p. m. and that WGY should discontinue evening broadcasting at 10:00 p. m., or since both stations are under my "personal management, this schedule can be varied at will from night to night."

* Actually the stations would be cut to 65 or 75 per cent of their present operating hours.

Commissioner Caldwell's letter, which apparently ignores the fact that the wavelength was transferred to Zone 5 under an assignment which, to quote the ruling "connotes 24-hour operation" for the people of Zone 5, was initialed by Commissioners Pickard, Lafount and Sykes. However, Commissioner Lafount wrote me on October 2nd that his willingness to endorse this suggestion was based upon the supposition that the arrangement would be entirely satisfactory to the fifth zone. He says, "Of course, if the Oakland station objected, then my attitude would be entirely different."

About this time Mr. J. A. Cranston, Commercial Vice President of the General Electric Company in charge of the Pacific Coast District, wired Commissioner Lafount strongly protesting, and calling attention to important features of KGO's program, including stock and market reports, live stock quotations, weather reports and special frost warnings now broadcast exclusively by KGO which would have to be eliminated if the station were shut down from sunset until 7:00 p. m. Protests from listeners who had heard of the proposed change, were received at KGO and several newspaper articles appeared, although the station carefully refrained from giving the matter any publicity.

193

Under the circumstances, we feel that the Commission in the application of a plan for the equalization and improvement of broadcasting, has entirely overlooked a section of the country including fully three million people. The transfer of WGY's wavelength to Zone 5 has left these people, who depended upon WGY, with no reliable broadcast service. The suggestion that WGY borrow the cleared channel from Zone 5 for evening broadcasting up to 10:00 p. m. is not satisfactory to the people of Zone 5 or to Station KGO. It does not give the people of Zone 5 the privilege of 24-hour service which the assignment connotes. We believe, in the interest of justice, the Commission should revise its order with reference to WGY so that the allocation may more nearly comply with the basis of the law; namely, public interest, convenience or necessity.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

MPR:T.

Federal Radio Commission, No. 110.

194 Copy.

General Electric Company.

General Office: Schenectady, N. Y.

1 River Road,
Schenectady, N. Y., October 26, 1928.

Mr. Louis G. Caldwell,
General Counsel Federal Radio Commission,
Washington, D. C.

DEAR MR. CALDWELL:

As you say in your letter of October 23rd that some of the statements in my previous letter may be misunderstood let me re-state the real issue.

The order of the Commission effective November 11th will deprive about three million people of their most dependable broadcasting, and will deprive WGY of its right to serve the public whom it has served for the past six and a half years. This surprising order was issued by the Commission without giving either the public or WGY a hearing.

When we protested and asked that we be permitted to retain our full-time wavelength or be assigned to some other equally good wavelength so that we might continue to serve the public, we were denied a hearing and told that a hearing could not be granted unless we were willing to attack some other station in the Zone and demand its wavelength.

These are the facts which constitute the real issue, and I do not find any answer to them in your letter. You, of course, know that we are not asking that any other station be deprived of broadcasting privileges either with or without a hearing; we are protesting that WGY and the listening public have already been deprived of broadcasting privileges on November 11th without a hearing.

Now, with regard to possible misinterpretation, let me refer to your statement implying "a small curtailment" in WGY's hours of operation during the late evening. You, of course, know that the Commission's orders transfer WGY's wavelength from the first zone to the fifth zone, and

promise the people of the fifth zone the privilege of 24-hour operation on this wavelength. The orders fur-
195 ther prohibit simultaneous operation of two stations like WGY and KGO after dark on the same wavelength. Therefore, WGY is prohibited from broadcasting after sunset in Oakland, California, by the Commission's own orders. However, some members of the Commission have sought to drive two ways on the one-way street which they have created by suggesting that WGY might borrow the fifth zone wave length until 10:00 o'clock in the evening. This suggestion presupposes that the people of Zone 5 are willing to shut down their station for two or three hours during the early evening, but, as a matter of fact, they are not, and the Commissioner representing Zone 5 has been so informed.

Even if the plan were entirely practicable, it cannot in any sense be termed a small curtailment as you will readily see from examining the accompanying diagrams showing program hours which it would necessitate canceling at WGY and KGO.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

MPR:T.

(Here follows diagram, marked page 196.)

Federal Radio Commission, No. 111.

197 Copy.

General Electric Company.

General Office: Schenectady, N. Y.

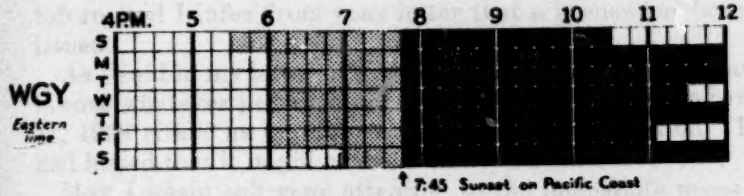
1 River Road,
Schenectady, N. Y., October 27, 1928.

Mr. Louis G. Caldwell,
General Counsel Federal Radio Commission,
Washington, D. C.

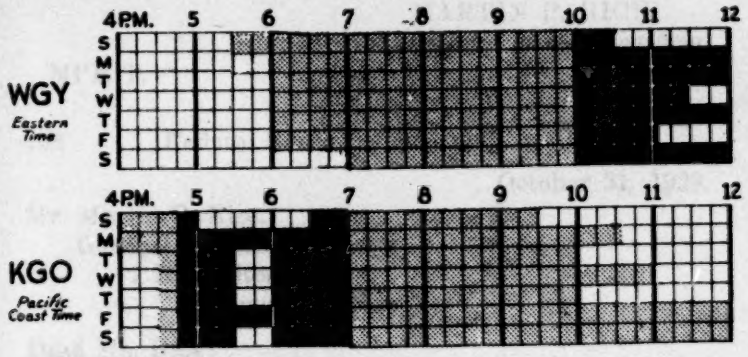
DEAR MR. CALDWELL:

Referring again to your letter of October 24th marked "attention of Mr. J. W. Lewis, Assistant Secretary," you

How Radio Ruling Hits WGY



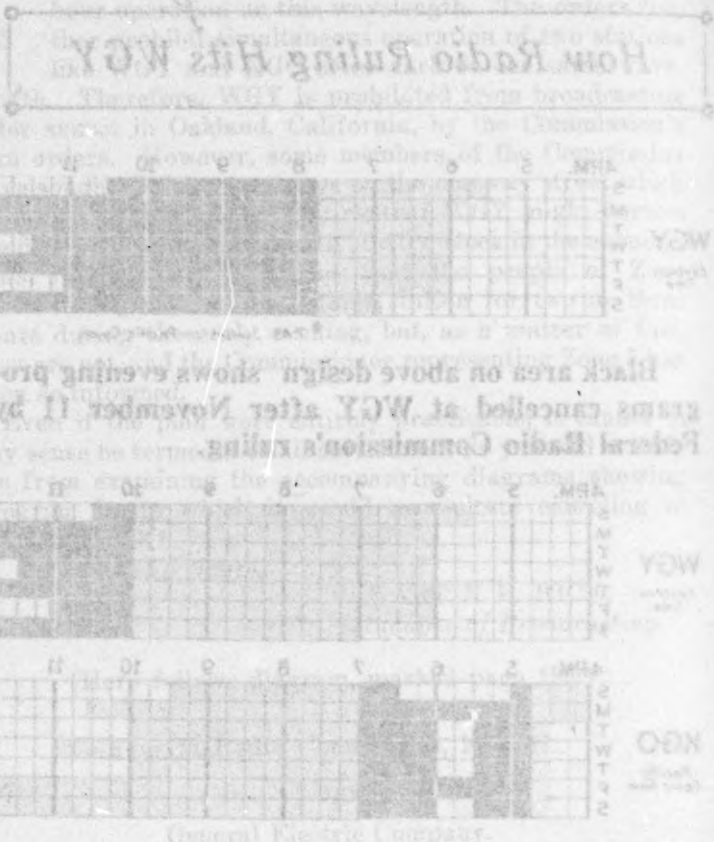
Black area on above design shows evening programs cancelled at WGY after November 11 by Federal Radio Commission's ruling.



Black areas on above two diagrams show programs cancelled at WGY and KGO by Commission's suggestion, which does not conform to its own regulations.

The black and shaded areas on all three diagrams indicate the program periods of both stations at the present time.

General Electric Company
Appellant
vs.
Federal Radio Commission


Hour Radio Ruling Hits WGY
WGY
WGY
NBC

state that the application for renewal of WGY's license, which expires on November 11, 1928, has already been acted upon by the Commission in connection with the new allocation. The newspaper publicity which you have released gives the impression that WGY will be permitted to continue broadcasting after November 11th practically as heretofore, and I infer from your letter that a license has been issued.

As I said in my letter of yesterday, WGY has received no license whatever permitting it to broadcast after November 11, 1928 either as heretofore or on the new allocation. I had hoped that it might arrive in today's mail.

May I again call your attention to the immediate necessity of our having a license from the Commission showing definitely when and how WGY will be permitted to broadcast.

Very truly yours,

MARTIN P. RICE,
Manager of Broadcasting.

MPR:T.

198 Federal Radio Commission, No. 112.

October 31, 1928.

Mr. Martin P. Rice,
General Electric Company,
1 River Road,
Schenectady, New York.

DEAR MR. RICE:

Your new license, effective November 11, 1928, was issued several days ago and should be in your hands by this time. It, of course, has to pass through the hands of the Federal Radio Supervisor in your District, and this probably accounts for the fact that you had not received it by the time you wrote your letter of October 26th.

The license is in accordance with the assignment of frequency, power and hours of operation listed in the new allocation, of which you are already fully informed.

I do not see that any useful purpose will be served by our getting into a discussion of the merits of your case. The procedure which has been fully explained to you, is still

open to you at any time for the purpose of obtaining a better assignment. If you choose to ignore the regulations of the Commission or to refuse to follow them, the Commission has only one course to follow and that is to leave your assignment unchanged in any respect. The Commission cannot single out WGY and except it from a rule which it is applying to all other broadcasting stations whether large or small.

Very truly yours,

LOUIS G. CALDWELL,
General Counsel.

On October 17, 1928, the Federal Radio Commission issued the following license to the General Electric Company for the operation of its station WGY for the term beginning 3 A. M., November 11, 1928, and ending 3 A. M., January 31, 1929. (R. Doc. 99.)

199 Federal Radio Commission. No. 99.

Copy.

Form No. 20.
Class: —. Official No.: 264. Call Letters: WGY.

United States of America Federal Radio Commission.

Radio Broadcasting Station License.

Subject to the provisions of the Radio Act of 1927, as amended on March 28, 1928, the regulations made thereunder and such subsequent acts and treaties, and regulations as may be established thereunder and the conditions mentioned in this license, all of which terms and conditions are hereby made a part hereof as though specifically set out in full herein, General Electric Company is hereby authorized to use and operate the radio apparatus herein described for the purpose of broadcasting for the term beginning 3 A. M., November 11, 1928, & ending 3 A. M., January 31, 1929, Eastern Standard Time, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency

or wave length specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, as amended, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The licensee is authorized to use and operate the apparatus located at Number — Mariaville Road, City or Town of South Schenectady, County of Schenectady, in the State of New York, and is described as follows: General Electric-V. T. Telephone.

The licensee is also authorized to use and operate the auxiliary apparatus for emergency purposes only, located at Number — —— Street, City or Town of ——, County of ——, in the State of ——, and is described as follows: ——.

The authorized frequency or wave length, maximum power, call letters, and time of operation are as follows:

Frequency, 790; approximate wave length, 379.5 meters; power output, 25,000 watts & 25,000 watts additional on experimental basis; call letters, WGY; time of operation, limited.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate broadcasting service during the authorized time of operation, and a violation of this condition will be considered a ground for the suspension or revocation of this license.

The commission reserves the right at any time after the date of this license to make such changes in the frequency, power, and time of operation above authorized as will promote public interest or convenience, or will serve public necessity, or are necessary to comply with Section 9 of the Radio Act of 1927, as amended by Section 5 in the Act of Congress of March 28, 1928, or regulations made thereunder.

Dated this 17th day of October, 1928.

[SEAL.] FEDERAL RADIO COMMISSION.

—— ——, *Chairman.*

200 Federal Radio Commission, 117.

#385. No. 19.

Minutes of the Federal Radio Commission.

November 22, 1928—10:30 A. M.

Present: Commissioners Robinson (Chairman), Sykes, Caldwell, and Lafount; the General Counsel and the Secretary.

Applications Designated for Hearing.

The Commission examined the following application dated November 3, 1928 for modification of license:

File. No.	Applicant.	Call letters.	Nature of application.
I-M-B-128	General Electric Company	WGY	Full time on 790 kc. or any frequency substantially equivalent

A motion was made by Commissioner Lafount as follows:

1. That, since the frequency of 790 kc is a frequency allocated to the Fifth Zone under General Order No. 40, and therefore not available for use in the First Zone for full time operation, the application be denied insofar as it requests full time operation on that frequency, and

2. That, since said application, insofar as it requests the use of "any frequency substantially equivalent" etc., fails to comply with the rule of the Commission requiring every application for modification of license with respect to frequency to specify a definite frequency as the one requested, the rest of said application be likewise denied.

A motion was thereupon made by Commissioner Sykes to substitute the following paragraphs for Paragraph 2 of said motion:

(2) That the application, insofar as it requests the use of "any frequency substantially equivalent," be construed as an application for one of the eight frequencies (popularly known as cleared channels) allocated to the First Zone, namely 660, 710, 760, 860, 990, 1060, 1100 and 1150 kc.

(3) That the application be therefore considered as coming within the terms of the rule of procedure adopted by the Commission at its meeting of October 6, 1928, as follows:

"In all cases where an applicant for modification of a broadcasting license requests a change to more than one frequency, a hearing will be set only with respect to one
201 requested frequency at a time. In all cases in which the applicant does not indicate a preference the Commission itself will determine which frequency shall be the subject of the first hearing. Applications for other frequencies will be set for hearing, but will be continued from time to time after the first hearing is held."

(4) That, since the applicant, General Electric Company, although repeatedly requested by the Commission, has at all times failed and refused to specify as to which frequency it desired to be heard first, the Commission should immediately proceed to designate such frequency.

(5) That, since the State of New York already has assigned to it four of the eight cleared channels allocated to the First Zone, namely 660, 760, 860 kilocycles, (which have been assigned to stations in the New York City area), and 1150 kc. (which has been assigned to a station in Rochester, N. Y.), the Commission should designate one of the three frequencies now used in the New York City area.

(6) That, since the frequency of 760 kc. is, of the frequencies available to the First Zone, the one most nearly equivalent to the frequency of 790 kc. heretofore used by the applicant, the Commission should designate the frequency of 760 kc. as the one on which the applicant's application shall be heard.

(7) That a hearing be held on said application so construed at an early date in accordance with the usual procedure of the Commission and the stations now assigned to said frequency of 760 kc. be duly notified.

The foregoing motions were thereupon referred to the General Counsel who advised the Commission that, in his opinion, action should not be taken on either motion so long as the order of the Court of Appeals of the District of Columbia, entered on November 9, 1928, remained in effect,

and possibly until a decision was rendered by the Court of Appeals on the case now pending before it. The Commission therefore took both motions under advisement

CARL H. BUTMAN,
Secretary.

B.

On June 1, 1927, the Federal Radio Commission issued a license to the Renssler Polytechnic Institute, Troy, N. Y., operating Station WHAZ, for the term ending July 31, 1927. This license was further extended until October 14, 1927, and later extended to November 1, 1927. (R. Docs. 115 and 116) This license permitted the use of the frequency of 790 kc and was issued upon application of the Renssler Polytechnic Institute for operating time as follows: 8 P. M. until midnight every Monday night only. (R. Docs. 113 and 114) The application of station WHAZ, dated March 29, 1927, contains the following (R. Doc. 113):

"12. If broadcasting station:

(*a*) During the preceeding year—

(1) What wave lengths have been used? 379.5 *meters.*

(2) What power out-put has been employed? 500 *watts.*

(3) What days of the week and at what hours did the station regularly operate during the year? 8 *P. M. until midnight every Monday night only.*"

The Federal Radio Commission has authorized and licensed the use of the frequency of 790 kc to various other stations as follows: On July 7, 1927, Station WCAJ, Nebraska Wesleyan University, Lincoln, Nebr., was authorized to operate on this frequency and this station continued to so operate under license until November 11, 1928. (R. Docs. A1, A6, A7, A8, appeal No. 4880 and R. Docs. 60 to 68, inclusive, appeal No. 4870)

Station KMMJ, the M. M. Johnson Company, Clay Center, Nebr., was authorized to use this frequency from July 7, 1927, to October 31, 1927. (Docs. A1, A2, A3, appeal No. 4880)

Station KMTR, the KMTR Radio Corporation, Hollywood, Calif., was authorized to use this frequency from April 29, 1927, to June 1, 1927. (R. Docs. A9, A10, A11, appeal No. 4880)

Station WMBL, Benford's Radio Studio, Lakeland, Fla., was authorized to use this frequency from April 22, 1927, to June 1, 1927. (R. Doc. A4)

Station WOAN, Lawrenceburg, Tenn., was authorized to use this frequency from April 22, 1927, to June 1, 1927. (R. Doc. A5)

202 Federal Radio Commission, A-1.

Copy.

676.

Federal Radio Commission.

Special Order No. 52.

July 7, 1927.

In order to promote public convenience or interest, or to serve public necessity, it is hereby ordered that Station KMMJ, The M. M. Johnson Company, Clay Center, Nebraska, be changed from operating on a frequency of 1310 kilocycles, to a frequency of 790 kilocycles, with a power output of 500 watts, sharing time on this channel with Station WCAJ.

It is also ordered that Station WCAJ, Nebraska Wesleyan University, University Place, Lincoln, Nebraska, be changed from operating on a frequency of 860 kilocycles, to a frequency of 790 kilocycles, with a power output of 500 watts, sharing time on this channel with Station KMMJ.

Licenses specifying the above frequency and power, effective July 7th and continuing in effect to August 15th, will be issued at once to these stations in accordance with this order.

203 Federal Radio Commission, A-2.

Copy.

Form 2. Official No. 676.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: KMMJ.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, The M. M. Johnson Company is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending August 14, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of Nebraska, County of Clay, City or town of Clay Center, Glenvil Street, number —, and is described as follows: Western Electric V. T. Telephone.

204 The nature of the service authorized to be rendered under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.

Power: Output 500 watts.

Call letters: KMMJ.

Time of operation: Divides time with WCAJ.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate

service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this 7th day of July, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,
By ——— ———, *Chairman.*

nvc.

205 Federal Radio Commission, A-3.

Copy.

Federal Radio Commission, Commerce Building,
Washington.

Commissioners: W. H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

RC-3. August 8, 1927.

M. M. Johnson Co.,
Radio Station KMMJ,
Clay Center, Nebr.

SIR:

Your license to operate your radio broadcasting station, which will expire in a few days, is hereby extended and renewed from its date of expiration until October 14, 1927, on which day it will terminate unless further extended or renewed by this Commission.

This extension or renewal is subject to all the terms and conditions of the now existing license.

FEDERAL RADIO COMMISSION,
By W. H. G. BULLARD, *Chairman.*

206 Federal Radio Commission, A-4.

Copy.

Federal Radio Commission, Commerce Building,
Washington.

Commissioners: W. H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

Station WMBL.

April 22, 1927.

Benford's Radio Studios,
121 North Kentucky Ave.,
Lakeland, Florida.

SIR:

Your application for the renewal of your radio broadcasting station license is at hand. Pending final action on the same, you are hereby authorized to operate your station in accordance with the radio law, approved February 23, 1927, using a power output of 10 watts and a frequency of 790 kilocycles (379.5 meters) until further orders are received by you from this Commission.

Until a more definite method of measurement is adopted the power output will be taken as one-half the power (volt-amperes) in the plate circuit of the oscillator, or in the plate circuit of the power amplifier tube if one is used.

This extension is not to be considered as a finding that your operation is in the public interest, convenience, of necessity.

This will be determined only after full consideration of the facts.

FEDERAL RADIO COMMISSION,
—— ——, *Chairman.*

207 Federal Radio Commission, A-5.

Copy.

Federal Radio Commission, Commerce Building,
Washington.

Commissioners: W. H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

WOAN.

April 22, 1927.

The Church of the Nazarene and Vaughan School of Music,
Public Square,
Lawrenceburg, Tenn.

SIR:

Your application for the renewal of your radio broadcasting station license is at hand. Pending final action on the same, you are hereby authorized to operate your station in accordance with the radio law, approved February 23, 1927, using a power output of 250 watts and a frequency of 790 kilocycles (379.5 meters) until further orders are received by you from this Commission.

Until a more definite method of measurement is adopted the power output will be taken as one-half the power (volt-amperes) in the plate circuit of the oscillator, or in the plate circuit of the power amplifier tube if one is used.

This extension is not to be considered as a finding that your operation is in the public interest, convenience, or necessity.

This will be determined only after full consideration of the facts.

FEDERAL RADIO COMMISSION,
—— ——, *Chairman.*

208 Federal Radio Commission, A-6.

Copy.

Form 2. Official No. 689.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: WCAJ.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, Nebraska Wesleyan University is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending August 14, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of Nebraska, County of Lancaster, City or town of University Place, P. O. Lincoln, 18th & R Street, number —, and is described as follows:

Composite V. T. Telephone.

209 The nature of the service authorized to be rendered under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.

Power: Output 500 watts.

Call letters: WCAJ.

Time of operation: Divides time with KMMJ.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate

service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this 7th day of July, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,
By ——, *Chairman.*

nvc.

210 Federal Radio Commission, A-7.

Copy.

Federal Radio Commission, Commerce Building,
Washington.

Commissioners: W. H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

RC-3.

August 8, 1927.

Nebraska Wesleyan University,
Radio Station WCAJ,
18th & R Sts., University Place,
Lincoln, Nebr.,

SIR:

Your license to operate your radio broadcasting station, which will expire in a few days, is hereby extended and renewed from its date of expiration until October 14, 1927, on which day it will terminate unless further extended or renewed by this Commission.

This extension or renewal is subject to all the terms and conditions of the now existing license.

[SEAL.] FEDERAL RADIO COMMISSION,
By W. H. G. BULLARD, *Chairman.*

211 Federal Radio Commission, A-8.

Copy.

Form 2. Official No. 689.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: WCAJ.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, Nebraska Wesleyan University is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communications for the term ending December 31st, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the licensee is located in the State of Nebraska, County of Lancaster, City or town of University Place, P. O. Lincoln, 18th & R Street, number —, and is described as follows:

Composite V. T. Telephone.

212 The nature of the service authorized to be rendered under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 790 kilocycles, or wave length 379.5 meters.

Power: Output 500 watts.

Call letters: WCAJ.

Time of operation: Unlimited.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate

service of the character above specified during the authorized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this 1st day of November, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,
By ——— ———, *Chairman.*

IS.

Federal Radio Commission, A-9.

213 Copy.

Federal Radio Commission, Commerce Building, Washington.

Commissioners: W.H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

April 29, 1927.

KMTR Radio Corporation,
1025 North Highland Avenue,
Hollywood, California.

SIR:

Your application for the renewal of your radio broadcasting station license is at hand. Pending final action on the same, you are hereby authorized to operate your station in accordance with the radio law, approved February 23, 1927, using a power output of 500 watts and a frequency of 790 kilocycles (379.5 meters) until further orders are received by you from this Commission.

Until a more definite method of measurement is adopted the power output will be taken as one-half the power (volt-amperes) in the plate circuit of the oscillator, or in the plate circuit of the power amplifier tube if one is used.

This extension is not to be considered as a finding that your operation is in the public interest, convenience, or necessity.

FEDERAL RADIO COMMISSION.
——— ———, *Chairman.*

Federal Radio Commission, A-10.

214 Copy.

Form 2. Official No. 17.

United States of America, Federal Radio Commission.

Radio Station License (Other Than Ship).

Class: Broadcasting. Call Letters: KMTR.

Subject to the provisions of the Radio Act of 1927 and the conditions mentioned in this license, KMTR Radio Corporation is hereby authorized to use and operate the radio apparatus herein described for the transmission of radio communication for the term ending July 31, 1927, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies or wave lengths specified herein, beyond the terms hereof, nor in any other manner nor at any other time or place than authorized herein. Neither the license nor right granted herein shall be assigned or otherwise transferred in violation of the Radio Act of 1927, and this license is expressly subject in terms to the right of use or control conferred by Section 6 of said Radio Act.

The apparatus authorized to be used and operated by the license is located in the State of California, County of Los Angeles, City or town of Hollywood, North Highland Ave., Street, number 1025, and is described as follows: Western Electric (Type 1-B) V. T. Telephone.

The nature of the service authorized to be rendered
215 under this license is as follows: Broadcasting.

The authorized frequencies or wave lengths, maximum power, call letters, and time of operation are as follows:

Frequency: 570 kilocycles, or wave length 526.0 meters.

Power: Output 500 watts.

Call letters: KMTR.

Time of operation: Unlimited.

As one of the conditions of this license, the licensee is required during the term of this license to render adequate service of the character above specified during the author-

ized time of operation and a violation of this condition will be considered a ground for the suspension or revocation of this license.

This license is issued under and in accordance with the Radio Act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein.

Dated this first day of June, 1927.

[SEAL.] FEDERAL RADIO COMMISSION,
By —— ——, *Chairman.*

MS.

Federal Radio Commission, A-11.

216 Copy.

Federal Radio Commission, Commerce Building,
Washington.

Commissioners: W. H. G. Bullard, Chairman; Orestes H. Caldwell, Eugene O. Sykes, Henry A. Bellows, John F. Dillon.

RC-3.

August 8, 1927.

KMTR Radio Corp.,
Radio Station KMTR,
1025 N. Highland Ave.,
Hollywood, Calif.

SIR:

Your license to operate your radio broadcasting station, which will expire in a few days, is hereby extended and renewed from its date of expiration until October 14, 1927, on which day it will terminate unless further extended or renewed by this Commission.

This extension or renewal is subject to all the terms and conditions of the now existing license.

FEDERAL RADIO COMMISSION,
By W. H. G. BULLARD,
[SEAL.] *Chairman.*

Appellant's Appendix.

(Included in Record by Appellant and Objected to by Appellee.)

217 B-1.

Received Jany 9th.

Important. Important. Important.

Federal Radio Commission, Washington.

January 4, 1928.

To the Station Manager:

The attached application blanks for broadcast license renewal must be filled out and returned through the Supervisor of Radio of your District, prior to January 15th.

This is necessary if you want your license renewed. All existing broadcasting licenses expire on January 31, 1928.

Very truly yours,

CARL H. BUTMAN,
Secretary.

218 B-2.

January 14, 1928.

Mr. Arthur Batcheller,
U. S. Supervisor of Radio,
Sub-Treasury Building,
New York City.

DEAR MR. BATCHELLER:

Complying with the request of the Federal Radio Commission, I am forwarding to you application forms in triplicate for a broadcasting station license for WGY.

Very truly yours,

——— ———,
Manager of Broadcasting.

HS:CN.
Att. 3.

210 E.

October 26, 1928

Federal Radio Commission,
Washington, D. C.

DEAR SIRS:

1. We are handing to you herewith an application for renewal of the WGY Station License, which is prepared in accordance with the forms furnished by the Federal Radio Commission. It is not on a *printed* form, for the reason that we have been unable to obtain any printed forms.

With that application we are handing to you the affidavits referred to in and forming a part of our answer to question 12 of the application.

We direct your attention also to the statements near the end of our answer to question 12, to the effect that the General Electric Company has no objection to accepting a frequency or wave length different from that upon which it has been operating, provided that it is the equivalent, or substantially as good, in enabling us to render to the public the service which we have been rendering.

Referring to item 17 of the application, it is our position that WGY, because of the character of the service which it has been rendering to the public and the many years which it has rendered that service continuously, is entitled to continue to render such service, though of course we recognize that the United States has a regulatory power which may be exercised as such, though not with the result of depriving the General Company of its established rights, or depriving the public of the service to which it is entitled.

2. We have heretofore filed an application for modification of the reallocation with reference to Station WGY. A letter from the Commission, dated October 17, advises us that this application has been denied. We ask for a hearing in this connection, such a hearing being provided for in the Statute and in the Commission's notification as to the proposed reallocation.

Upon such hearing we request that the application for renewal of license, referred to in paragraph 1 above, and

Appellant's Appendix.

(Included in Record by Appellant and Objected to by Appellee.)

217 B-1.

Received Jany 9th.

Important. Important. Important.

Federal Radio Commission, Washington.

January 4, 1928.

To the Station Manager:

The attached application blanks for broadcast license renewal must be filled out and returned through the Supervisor of Radio of your District, prior to January 15th. This is necessary if you want your license renewed. All existing broadcasting licenses expire on January 31, 1928.

Very truly yours,

CARL R. BUTMAN,
Secretary.

218 B-2.

January 14, 1928.

Mr. Arthur Batcheller,
U. S. Supervisor of Radio,
Sub-Treasury Building,
New York City.

Dear Mr. Batcheller:

Complying with the request of the Federal Radio Commission, I am forwarding to you application forms in triplicate for a broadcasting station license for WGY.

Very truly yours,

_____,
Manager of Broadcasting.

HS:CN.
Att. 3.

219 H.

October 23, 1928.

Federal Radio Commission,
Washington, D. C.

DEAR SIRS:

1. We are handing to you herewith an application for renewal of the WGY Station License, which is prepared in accordance with the forms furnished by the Federal Radio Commission. It is not on a *printed* form, for the reason that we have been unable to obtain any printed forms.

With that application we are handing to you the affidavits referred to in and forming a part of our answer to question 12 of the application.

We direct your attention also to the statements near the end of our answer to question 12, to the effect that the General Electric Company has no objection to accepting a frequency or wave length different from that upon which it has been operating, provided that it is the equivalent, or substantially as good, in enabling us to render to the public the service which we have been rendering.

Referring to item 17 of the application, it is our position that WGY, because of the character of the service which it has been rendering to the public and the many years which it has rendered that service continuously, is entitled to continue to render such service, though of course we recognize that the United States has a regulatory power which may be exercised as such, though not with the result of depriving the General Company of its established rights, or depriving the public of the service to which it is entitled.

2. We have heretofore filed an application for modification of the reallocation with reference to Station WGY. A letter from the Commission, dated October 17, advises us that this application has been denied. We ask for a hearing in this connection, such a hearing being provided for in the Statute and in the Commission's notification as to the proposed reallocation.

Upon such hearing we request that the application for renewal of license, referred to in paragraph 1 above, and

all of the papers forming a part of that application, be taken as a part of the application for a modification of the reallocation.

Very truly yours,

GENERAL ELECTRIC COMPANY,
J. W. LEWIS,
Assistant Secretary.

220 Call Letters: —. Frequency: —. Power: —.

United States of America, Federal Radio Commission.

Application for Renewal of Radio Broadcasting Station License.

(Submit in triplicate to District Supervisor of Radio. Swear to one copy.)

To the Federal Radio Commission:

1. Name of applicant: General Electric Company.
2. Post office address: State, New York; City, Schenectady; Street, River Road; Number, 1.
3. Citizenship: ——.
4. If a corporation, company, or association:

(*a*) Organized under laws of State of New York.

(*b*) May one-fifth, or more, of capital stock be voted by an alien or his representative or by a foreign government or the representative thereof? No.

(*c*) State name and position of any director or officer who is an alien: None.

(*d*) If applicant is a subsidiary, state name and address of parent company: No.

(*e*) Has any change in ownership of this station occurred in the past 60 days? No.

5. Is the applicant the representative of an alien or foreign government? No.
6. Has the applicant, since February 23, 1927, been found guilty by any Federal Court of unlawfully monopolizing, or attempting to monopolize, radio communication
221 through control of manufacture or sale of radio apparatus, exclusive traffic arrangements, or any other means, or by unfair methods of competition? No.
7. Description of transmitting apparatus:

(*a*) Make, General Electric; Type, Special radio telephone; Maximum Power, 150 KW; Minimum, 25 KW; Output power of oscillator or amplifier tube, ZT-1, 15 KW as grid controlled amplifier at 12,500 volts. Electron tubes, number of, Radio Crystal, 1-UX 201; 1-UV 211; 1-UV 849; 2-ZT 7; 6-ZT-1; Audio, 1-UV 211; 1-UV-851; 2-UX 849; 50 KW operation. Oscillators, number of, 1-UX 849; Total plate current, .190 amp.; Total plate voltage, 2000 volts. Modulators, Number of, 2 UX 849; Total plate current, .200 Amp.; Total plate voltage, 3000 V. Amplifiers, Number of, 4 ZT 1; Total plate current, 12 amp.; Total plate voltage, 14,500 V.; 50 KW operation. Type of frequency control employed, Automatic Piezo Crystal control. Temperature controlled. Make of frequency control, General Electric.

(b) Has any change in equipment been made in the past 60 days? Yes, amplifier system and tubes. Spare Complete 12.5 KW transmitter with separate antennae and power supply available.

8. Location of transmitter: State New York, County Schenectady, City or town, Near South Schenectady; Street None, Number None.

(*a*) Approximate number of families within one mile transmitter? 135; Two miles? 1605; Three miles? 5203.

(*b*) Location of studios: Studios located in new International General Electric building conveniently accessible railroad and to all parts of the City. Wire connec-
222 nections to four hotels, 16 churches, 2 theaters, State Capitol, etc.

(*c*) Has any change in location of either transmitter or studio been made the past 60 days? No.

9. Specify actual periods station is operated:

(*a*)	A. M.	P. M.	Total hours daily.
Sunday	10:30-12:00	1:30-2:00	9
		3:30-10:30	
Monday	6:45-8:00	12:30-12:50	
	8:30-8:45	2:00-2:45	
	11:15-11:45	6:00-12:00	
	11:55-12:00		2¼
Tuesday	6:45-8:00	12:30-12:50	
	8:30-8:45	1:30-2:45	
	11:15-11:45	6:00-12:00	
	11:55-12:00		9¾

(a)	A. M.	P. M.	Total hours daily.
Wednesday ...	6:45-8:00	12:30-12:50	
	8:30-8:45	2:00-2:45	
	10:00-11:00	5:00-5:15	
	11:15-11:45	6:00-11:00	
	11:55-12:00		10½
Thursday	6:45-8:00	12:30-12:50	
	8:30-8:45	1:30-3:15	
	11:15-11:45	6:00-12:30	
	11:55-12:00		10¾
Friday	6:45-8:00	12:30-12:50	
	8:30-8:45	1:30-2:45	
	10:00-11:00	6:00-11:00	
	11:15-11:45		9¾
	11:55-12:00		
Saturday	6:45-8:00	2:30-5:00	
	8:30-8:45	7:00-12:00	
	11:15-11:45		
	11:55-12:00		9½
Total Weekly Hours			68½ hrs.

(*b*) Does station divide time, and if so with what station? No.

(*c*) Does station obtain programs from what is known as a "Chain"? Yes, two chains.

223 (*d*) Name of chains N. B. C., Red Network and New York State chain, WFBL—WHAM—WMAK.

(*e*) What is total hours per week of chain programs (i. e. programs, both paid or sustaining, which are duplicated by any other station)? Red Network—36 hrs; New York chain 3.7 hrs.

(*f*) How are stations connected? Wire? Yes; Radio? No.

10. Under existing license:

(*a*) What frequency is used? Kilocycles? 790; Meters 379.5.

(*b*) What power output is employed after 6 p. m.? 50 KW.

(*c*) What power output 6 a. m. to 6 p. m.? Usually employ 12.5 KW spare transmitter.

(*d*) Total number of hours station operated during past 12 months? 3143 hrs. 37 min.

(*e*) State minimum number of hours station will be operated each quarter. 690 hrs.

11. Attach printed program for last week.

12. Why will the operation of the station be in the public convenience, interest, and necessity?

Location:

Station WGY is located at Schenectady and South Schenectady New York. Geographically, WGY is separated by the following distances from the nearest cities with stations operating on exclusive evening channels or frequencies.

142 miles New York.
86 miles Springfield.
249 miles Buffalo.
150 miles Boston.
190 miles Rochester.

Range of station:

The Federal Radio Commission has been advised by Mr. J. V. L. Hogan, radio expert, that the following table satisfactorily defines the range of stations under average conditions.

224

Power of station.	Radius of area of very good service (city dweller).	Radius of area of good service (suburban dweller).	Radius of area of fair service (rural listener).	Radius of nuisance area.
50 watts.....	2 miles	10 miles	100 miles	300 miles
100 watts.....	3 miles	15 miles	150 miles	450 miles
500 watts.....	6 miles	30 miles	300 miles	900 miles
1,000 watts....	9 miles	45 miles	450 miles	1,350 miles
5,000 watts....	20 miles	100 miles	1,000 miles	3,000 miles
50,000 watts...	60 miles	300 miles	3,000 miles	Beyond limits of country

Listeners who have for a considerable period enjoyed programs service from a station within the very good service area will not be content with the services of an inferior grade as listed in the other columns.

Population:

The population living within a 60 mile radius of WGY, which is the approximate "very good service" range of a 50 kilowatt broadcasting transmitter, approximates 1,000,-

000 people. The population within 100 miles of Schenectady approximates 2,400,000. This community, including Albany (New York State capital), Troy, Amsterdam, Utica and many villages and rural sections has depended almost entirely on WGY for radio programs during the past six and a half years. The New York City, Boston, Springfield and Rochester stations are not well received in this vicinity on account of fading and static interference and because this community is outside of the "very good service" range of these broadcasting stations. Many more distant listeners have depended on WGY for a comparatively reliable program source.

The listeners of WGY are largely located outside of the very good service areas of the New York City, Boston, Springfield and Rochester stations as is clearly indicated on the attached map, Exhibit "A."

On this map a circle has been drawn around New York City of 60 miles radius, showing the range of the two fifty kilowatt transmitters there licensed. A similar circle drawn around WGY shows that these two very good service areas do not overlap.

A circle of 34 miles radius has been drawn around Springfield, Mass., showing the proportionate service area of WBZ operating at 15 kilowatts.

225 A 20 mile circle around Rochester indicates the very good service area of Station WHAM at 5 kilowatts.

Public interest & necessity:

Public interest has been clearly indicated in listeners' letters commenting on WGY's entertainment of varied character so selected that they would fill the needs of our comparatively large rural audience which is especially dependent on radio in comparison with residents of the metropolitan areas. It is believed that because of its part in the development of the radio art and its service to broadcast listeners not only in central New York and northern New York, but in Vermont, western Massachusetts, New Hampshire and many other more distant communities, the WGY station activities can not be curtailed without imposing a real public hardship.

Service:

Station WGY was the forty-first station to be licensed and is now the tenth operative station in length of service.

WGY has been operating ever since May 21, 1923 on the 790 kilocycle channel.

Since the inauguration of the WGY service, over twelve thousand hours of programs have been rendered. There are no other stations reliably serving this territory with regular broadcast service which is a condition markedly in contrast with the conditions existing at such centers as New York, Chicago, San Francisco, Boston, where the public would be served by several stations.

New designation:

In accordance with the Federal Radio Commission's letter addressed "To all persons holding licenses to broadcast," dated September 11, 1928, to which was attached a list of radio stations, WGY is designated a limited time station and also as a part time station which would restrict its operation after the time of sunset at Oakland, Cal., corresponding to 8:01 P. M. Eastern Standard time during November, 7:56 P. M. Eastern Standard time during December, 8:17 P. M. Eastern Standard time during January. These restrictions are tantamount to cancelling the license so far as concerns the ability of the station to continue to give to its public the service to which that public is entitled to receive and can only receive from WGY. Without any action or solicitation on the part of the station or its owners, several thousand letters of protest have been received by WGY from persons residing in the areas indicated on the attached map by colored dots. Each of the towns, cities or communities indicated by a red dot have sent (from a minimum of 10 to a maximum of 200
226 letters from Pittsfield, Mass.) letters protesting this curtailment in time of operation of WGY on which they advise they are wholly dependent. The blue dots indicate communities from which letters of protest have been received and stating they are in part dependent on WGY for their service. We have been advised and we believe that many thousands of letters protesting the curtailment of time of operation of WGY have been forwarded to news-

paper offices, the Federal Radio Commission and other depositories. Attached hereto are approximately 25 typical letters such as were received as indicated on the aforesaid map.

Public necessity for development of art:

WGY has the resources of the research laboratories of the General Electric Company and is used as a developmental station for testing new inventions and ideas.

Among the major improvements developed in connection with WGY are the following:

(*a*) Higher-powered transmitters:

This development of higher powered operation depended for its success on the cooperation of the broadcast listeners themselves who in fact became part of the developmental laboratories. It was the public's favorable reaction and its expressed perference for WGY's operation at 50 kilowatts and later at 100 kilowatts that has done so much to make possible the better broadcasting service through what now seems to be a general trend toward an increase of power to 50 KW.

(*b*) Larger vacuum tubes:

The development of larger vacuum tubes making possible higher powered operation.

(*c*) Condenser microphones:

First used for broadcasting purposes in the WGY station eliminating the hiss of the carbon microphones and now being generally adopted by progressive stations.

(*d*) Accurate maintenance of assigned frequency:

WGY was the senior Bureau of Standards standard frequency station.

(*e*) Short-wave developmental broadcasting:

Including the 2XAF and 2SAD stations that are famous and supply programs regularly to many of the continents of the world.

227 Thus, WGY has assisted in designing transmitters and other technical equipment which is now available to all other stations desirous of taking advantage of current developments and result finally in improved broadcast service to all of the general public throughout the country.

The short wave broadcasting was commenced in 1924 and has progressed through various wave lengths—109 meters, 65 meters, 42 meters, and since May 1926, station 2XAF has been operating on about 32 meters and 2XAD on 22 meters.

These short wave stations regularly transmit the same program as WGY on 379.5 meters and listeners in Cuba, Bermuda, Porto Rico, Canal Zone, South America, Europe, Africa, Australia regularly tune to the Schenectady short waves for their entertainment.

If the WGY programs are not available for these short wave stations, then larger groups of listeners will be deprived in many cases of their only broadcast programs.

Under date of July 16, 1928, the applicant forwarded to the Federal Radio Commission an application for two short wave broadcast station licenses and these applications with the supporting descriptive booklet now on file with the Commission are hereby referred to and made a part hereof.

We believe that it is clearly in the public interest to allow this developmental work to proceed without curtailment or interruption.

The General Electric Company is satisfied with its present frequency but understands that the same, under a plan of reallocation, has been assigned to the Fifth Zone. If therefore, such frequency is no longer available, the General Electric Company is prepared to accept in lieu thereof, an equivalent frequency which will enable it to continue the service which it has rendered in the past. The General Electric Company will also accept a power assignment equal to the maximum allowed any other station.

Further answer to this question twelve is embodied in the affidavits of A. J. Horn, Martin P. Rice and Harry L. Ford, hereto attached, marked "A," "B," and "C" and made a part hereof.

(*a*) Average amount of time devoted to following services:

1. Entertainment, 45.75 hours.
2. Religious, 3 hours.
3. Commercial (Mainly and included in 1 and 4), 30.25 hours.

228 4. Educational, 12.75 hours.

5. Agricultural, 3.5 hours.

6. Fraternal, —.

7. Weather & Market Reports & News, 3.5 hours.

(*b*) Is direct advertising conducted in interest of applicant? No; or others? No.

1. Are merchandise prices quoted in interest of applicant? No; or others? No.

(*c*) Does or will applicant sell time? Yes.

1. Average number of hours sold weekly before 6 p. m.? 12.75; after 6 p. m.? 17.5 hours.

2. Average number of hours used weekly in interest of applicant? None directly.

(*d*) Average amount spent weekly for talent? $1221.

(*e*) Total annual net income, exclusive of expense past year: Last 3 mos. 1927—First 9 mos. 1928:

	WGY
Total Operating Expenditures	238,965
Talent expenses (included above)	63,541
Income Commercial programs	67,165

(*f*) If applicant does not propose to sell time how will station be supported? By the General Electric Company.

13. Give names and classes of licensed operators in charge of station. Harry Sadenwater, Commercial Extra First Class; R. S. Hoff, Commercial First Class; C. B. Schou, Commercial First Class.

(*a*) Number of other employees? 17. Total weekly payroll? $970.66.

14. Do you maintain continuous watch on ship calling channel during operative hours? Yes.

15. Does the applicant own or control any other broadcast station? Yes.

(*a*) State number and call letters of such stations. 2—KGO and KOA.

(*b*) Does applicant own or control any radio station other than broadcasting? Yes.

(*c*) Give number and type of any such station: 229 13—Experimental.

(d) For what purpose are those stations used? Developmental and research work.

16. History of station:

(*a*) Date of first license to broadcast: February 4, 1922.

(*b*) First frequency: 832.8; Wave length: 360 meters; Power: 1,500 watts.

(*c*) List all changes in frequency and power authorized, with dates:

May 3, 1922—618.2 KC (485 meters) authorized for weather & market reports.

Sept. 27, 1922—749.6 KC (400 meters) for programs and 618.2 KC for weather reports. Power changed to 1000 watts in the antenna.

May 21, 1923—Assigned 790 KC—1000 watts.

Dec. 31, 1924—Increased to 1500 watts.

Jan. 28, 1925—Increased to 2000 watts.

Aug. 8, 1925—Increased to 3000 watts.

Aug. 22, 24, 25, 1925—Test programs 50 KW.

Aug. 28, 1925—Increased to 3000 watts.

Sept. 10, 1925—Increased to 3500 watts.

Sept. 24, 25, 26, 1925—Test programs 50 KW.

Sept. 30, 1925—Increased to 4000 watts.

Oct. 3, 1925—Authorized operate 50 KW Saturdays and Sundays.

Oct. 13, 1925—Increased to 4500 watts.

Oct. 26, 1926—Increased to 5000 watts.

May 8, 1926—50 KW regular operation authorized.

June 1, 1927—Power reduced to 30 KW.

Aug. 3, 1927—Test programs authorized at 100 KW.

Sept. 1, 1927—Regular programs authorized at 100 KW to Sept. 15.

Sept. 15, 1927—Power increased to 50 KW.

(*d*) On what frequencies and with what power did station operate between July 1, 1926, and February 23, 1927? 790 Kilocycles, 50 KW.

17. The applicant waives any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a radio station license in accordance
230 with this application.

Dated this 23rd day of October, 1928.

GENERAL ELECTRIC COMPANY,

By —— ——.

STATE OF NEW YORK,
County of New York, ss:

J. W. Lewis, being first duly sworn, upon his oath deposes and says he is the (if applicant is not an individual, insert "agent of") agent of above-named applicant and that the statements in the foregoing application are true of his own knowledge, and those made on information and belief, he believes to be true.

J. W. LEWIS.

Subscribed and sworn to before me this 23 day of October, 1928.

GERTRUDE CHANDLER,
Notary Public.

Notary Public, New York County No. 82.
New York County Register's No. 0-4.
Commission expires March 30th, 1930.
Application received.

Oct. 23, 1928.

Radio Supervisor's Report.

Remarks (state any pertinent facts): Application for renewal of broadcast station license covering station WGY. Forwarded for action of Federal Radio Commission.

HENRY L. BOGARDUS,
Actg. U. S. Supervisor of Radio.

(Here follows map, marked page 231).

232 Copy.

Frank Bigelow, Lawyer, 21 Pearl St., Fire Dept. Bldg., Malone, N. Y.

Police Justice of Malone Village.

September 22, 1928.

United States Radio Commission,
Washington, D. C.

GENTLEMEN:

I have been informed that you have made an order which practically puts out of business Station W.G.Y. of the Gen-

FOLD OUT IS TOO LARGE TO BE FILMED

Listeners wholly dependent on WGY

Listeners principally dependent on WGY

General Electric Company
Appellant
vs.
Federal Radio Commission.

Mont Laurier
Wright
Kippen
Bissett
North Bay
Brantford
Galt
Guelph
Huntsville
Midland
Newmarket
Lindsay
Peterborough

eral Electric Company, at Schenectady, N. Y., or that such order stops their broadcasting for practically all the hours of darkness during the winter season.

I can scarcely conceive of any other possible action that could more deeply injure the users of radio receivers in all this "North Country" for it will amount almost to confiscation of the money now invested in Radio sets in the northern tier of counties in New York State, and I think of many more counties to the south and in Vermont, and I desire most earnestly to protest against this order, and to ask you most respectfully to set it aside in the interest of at least a half million people along this northern border. The smaller the receiving sets and the poorer their owners, the more oppressive and confiscatory is this action.

The situation is just this, W.G.Y. is the only American broadcasting station north of New York City and east of Pittsburgh, Pa., which is dependable for service to us in Northern New York, and it almost goes without saying, that neither Pittsburgh nor New York, nor Boston has ever been able to give us as good service as has WGY.

We are able indeed to get good service from the Canadian stations at Ottawa and Montreal, but a great deal of their broadcasting is of interest only to Canadians, and they never broadcast matters of American national interest, as for instance a speech by the President of the United States or by Al Smith or Herbert Hoover, never broadcast any of the proceedings of our political conventions, and the only American matters of importance ever given out by them so far as I know, was the prize fight, which made Gene Tunney finally the champion.

If the common people who listen to broadcasting in northern New York felt sure that a letter would do any good, I think within the next forty eight hours you would receive about one hundred thousand letters at least protesting as strongly as I am doing against your crip-ling W.G.Y. in this matter.

Hoping you will not resent the frankness of this hurriedly written letter but give full consideration to the reasons I have given for my protest, I remain

Very respectfully yours,

FRANK BIGELOW.

233 P. S.—There are broadcasting stations in Buffalo, Syracuse, and Rochester, N. Y., but in two years I have never been able to get anything from them except when I got it through W.G.Y. of Schenectady, they seem absolutely silent and of no use to this North Country.—F. B.

234 Copy.

Children's Court, County of Oneida, County Court House, Utica, N. Y.

Parker F. Scripture, Special County Judge, Rome, N. Y.

Anna D. Rayland, Chief Probation Officer; Minnie A. Simons, Probation Officer; William J. Breitstein, Probation Officer; Nicholas J. Rienzo, Clerk; Iona M. Smith, Court Stenographer.

Sept. 25, 1928.

WGY, General Electric Company,
Schenectady, N. Y.

GENTLEMEN:

For the past seven years I have listened to the interesting, educational and varied programs sent out from your station. During the winter months when one usually spends their evenings at home these programs have been a great help in passing away the dreary evenings and have been available when it has been impossible to get reception from any other station.

Realizing that if the orders of the Federal Radio Commission as it stands at present, regarding WGY, are carried out, we shall be without any form of radio entertainment a great many evenings during the winter, I am writing this letter to you asking that it be considered as a very strong protest against WGY being taken from the air during the evenings to come and that you forward the letter to the proper authorities so that it may add to the thousands of protests which I know will come flocking in when they hear they are going to lose their old reliable friend WGY.

Yours truly,

WALTER L. ROBERTS,
Oneida County Probation Officer, Children's Court.

235 Copy.

September 25, 1928.

Hon. Frank L. Greene,
St. Albans, Vermont.

DEAR SENATOR GREENE:

In common with numerous other Vermonters, you are probably deeply concerned over the reports that a ruling of the Federal Radio Commission will deprive station WGY, of the General Electric Company at Schenectady, New York, of most of its time for evening broadcasting.

By reason of the location of this station, its superior equipment and power, it is by far the station giving the best and most reliable service. Here it is often the only station which we can receive with satisfaction and pleasure, and if this old stand-by is to be thrown off the air, our old friend of the air will be silent, and our homes, instead of resounding—ad libitum—with the fine local and studio programmes of WGY and its frequent broadcasting of feature programmes from the WEAF studio, will either be silent or filled with static etc. brought in with the increased amplification needed to be used in our attempts to bring in more distant stations. You know Vermont winters, and with cold weather coming on, the time is at hand when most folks can look forward to generous returns from their radio investment.

Any influence or effort you may see fit to expend to impress upon the proper authorities the fact that observance of this ruling as now understood will remove from the air not only a pioneer station in experiment and research but probably a station giving virtually the only reliable service to northern New England and New York will be deeply appreciated, not only by our household but by hosts of your loyal friends and supporters.

Mrs. McNeil and Wallace join me in sending our best personal regards.

Cordially yours,
(Signed by) LYMAN B. McNEIL.

236 Copy.

The Old Homestead, Wallace L. McNeil, P. O. Box 35,
Charlotte, Vermont.

September 25, 1928.

Radio Station WGY,
Schenectady, New York.

GENTLEMEN:

I followed with interest the advance reports of the Federal Radio Commission and anticipated something very worth-while and constructive, hoping against hope that this particular body would prove the exception to the usual governmental body and that this commission would show a little intelligence in its findings. But disappointment prevails, for with the ruling which is so likely to deprive WGY of its outstandingly valuable position, one cannot but see the utter lack of fairness and reason in such a decision.

WGY is by far the best station we receive here in northern Vermont; daytime reception is almost always perfect, while most people just tune in on WGY for the entire evening. Your general reports, etc. were the direct cause of my own purchase of two radio receivers (a Radiola Super-Heterodyne and a Brunswick Panatrope with Radiola AC set combined) but even with these two superlatively high quality sets, WGY is often the only service we can pick up in the evening with any satisfaction. Tonight, for instance, at 8/10 o'clock, WGY is coming very well, while only at WJZ and WEAF is it possible to hear any signal, and both these are too weak for any value. I was just talking with a neighbor over the 'phone, and she mentioned that if WGY goes off the air, their receiver will be junked, as no other station reaches us with any steady reliability.

You have pioneered in surveys, etc., but no matter how well and thoroughly made, I doubt if you appreciate half what WGY means to Vermont and northern New York. For balance of programme, combining as you do, market reports, etc., studio and local programmes and connections with WEAF, for all-round value, I believe WGY is our best example, not only of what a well-balanced radio station *could* be, but *is*.

I enclose copy of letter going forward to our good friend, Senator Greene. With all good wishes, I am

Sincerely,

(Signed) WALLACE L. McNEIL.

237 Copy.

Berkshire County Savings Bank, Life Insurance and Annuity Department, Pittsfield, Massachusetts.

William L. Adam, Treasurer; William H. Barrows, Manager of Department.

September 25, 1928.

WGY Broadcasting Station,
Schenectady, N. Y.:

Please send the following to where it will do the most good.

I am only one of many hundreds who living in this particular district depend almost entirely on WGY for radio entertainment. If this station were taken away, as there is talk of so doing, it would mean that all radio sets, whether powerful or otherwise would be practically of no use to their owners.

My own set is a fair average, being a six-tube Fada, but unless it is an exceptional night, I get no dependable reception except through WGY. That has been the one and only salvation of people living in this part of the country. Reception from any other stations either is so faint in volume that one has to strain their ears to listen, or else it comes in loud one minute, fading out to nothing the next. When one tunes into WGY we are always sure of being able to leave the dials in the same place and listen for as long as the station is broadcasting to good, clear reception.

If a vote were taken as to whether WGY should be taken off the air or left as it has been, I feel sure it would be a unanimous one to leave things as they are now.

Anyone in the radio business would soon fail if WGY is not to broadcast any more than one hour each evening. No one would risk buying a set without being sure of at least one good station to turn to when all else fails.

Yours very truly,

A. G. MESTON,
61 Pomeroy Ave., Pittsfield, Massachusetts.

238 Copy.

Edward Mead Earle, Glenwood, Saranac Lake, N. Y.

25 September, 1928.

General Electric Company,
Schenectady, N. Y.

GENTLEMEN:

I hope you will give this letter particularly careful attention, as it is a matter of vital concern. I am one of between fifteen hundred and two thousand victims of tuberculosis who are curing at Saranac Lake and whose principal contact with the outside world is the radio. Of these patients, a very considerable number is bed-ridden and some 150 veterans of the Great War; to deprive them of dependable radio service is to take away the greatest pleasure they enjoy. It is also to confiscate the thousands of dollars they have expended upon radio equipment. What is true of the patients at Saranac Lake is true of the patients at the various sanitaria at Trudeau, Raybrook, and Tupper Lake—the last named maintained by the U. S. Veterans Bureau.

WGY is the only station which we can obtain with any degree of success, as reception conditions are not good in the Adirondacks. If WGY is taken off the air after sunset, our long winter evenings are destined to be particularly gloomy. Surely the Federal Radio Commission is prepared to take into consideration the situation of this large constituency which is particularly in need of radio service, as its only available source of amusement.

I am normally a resident of the City of New York, but I see no reason why it—with its limitless resources for outside entertainment—should be given four high-powered stations at the expense of those other sections of the State which are less fortunately situated.

If you think it will do any good, I shall write either or both of the U. S. Senators representing New York. This protest against bureaucratic interference from Washington should be made as vigorous and as effective as possible.

Faithfully yours,

(Signed) EDWARD MEAD EARLE.

239 Copy.

Murray A. Dekin, Lowville, N. Y.

Upholstering, Refinishing, Crating, Shipping.

September 25th, 1928.

Station WGY,
General Electric Co.,
Schenectady, N. Y.

GENTLEMEN:

It is with that peculiar feeling that denotes that an injustice is about to be done, that I learn that WGY is to be made a part time station; by order of the Federal Radio Commission.

For nearly six years WGY has been and continues to be the backbone of local radio entertainment. In fact, except for local thunder-storms, I do not recall a single time that WGY has failed to come through. I would not dare attempt to estimate the number of nights when the broadcast of this station was all we could get.

Please do not construe that the basis for the above statements is the ownership of an inferior Radio set, as I am more than satisfied with the Zenith machine which I now own.

If there is any way I can be of assistance in trying to avert the injustice of a silent WGY through the long winter nights of this North country, please do not hesitate to call upon my humble assistance.

Very truly yours,
(Signed) MURRAY A. DEKIN.

240 Copy.

531 Elizabeth St. Oneida, N. Y., Sept. 27, 1928.

Station WGY,
Schenectady, N. Y.

GENTLEMEN:

It has recently been brought to my attention through the press and over the radio, that there is talk of WGY's being

forced off the air after 7:45 P. M. through the winter months by the Federal Radio Commission.

I herewith wish to enter protest against such action as WGY is my best station through which many splendid programs are received. Were it not for WGY the radio would be of little value many nights, as reception is such that many other stations cannot be brought in. If WGY is taken off the air I may as well sell my set, which is a Grebe and therefore not a cheap set.

Trusting action may be taken so that WGY may remain on the air as usual, I am

Yours very truly,

(Signed) GRACE T. HALLIDAY.

241 Copy.

Uburn Mercantile Co., Incorporated, Wholesale Grocers, Importers, and Coffee Roasters, Auburn, N. Y.

Office and Warehouse: Foot of McMaster Street.

Cream of the Harvest Products.

September 24, 1928.

Radio Station WGY,
Schenectady, N. Y.

GENTLEMEN:

I have been told that the Federal Radio Board contemplates greatly reducing your hours for broadcasting.

We have at home a Radiola 28 and have depended innumerable times on your station for our entertainment. Plenty of times the New York reception is bad and we usually can get it nicely from WGY and besides, we enjoy the programs originating with WGY.

Our experience is the same as thousands of others in this section and we certainly hope your activities will not be interfered with.

Yours very truly,

W. B. HÆFFNER.
M. C.

242 Copy.

Green Hill Mining Co., Inc., Gouverneur, N. Y.

Feldspar, Flint, Talc, Dolomite, White Marble, Marble Dust, Stucco Dash, Lead Free, Zinc Ore.

New York Office: 141 Broadway. Telephone: 5432 Rector.

September 24, 1928.

Radio Commission,
Washington, D. C.

Atten. Mr. O. H. Caldwell, Commissioner.

GENTLEMEN:

My attention has just been called to the outrageous ruling just issued by your commission, whereby WGY broadcasting station of the General Electric Co., at Schenectady is to be silenced during the evening hours.

For your information I beg to say that WGY is about the only source of radio waves which is at all dependable for the people residing in Northern New York.

It is seldom that we do not get WGY, but all others are silent much of the time, except Canton, N. Y., Prescott and Ottawa, Ontario. As you known, Canton and Prescott put on phonograph programs almost exclusively in the way of music and Ottawa is not dependable, except in the early afternoon.

Our operations are in remote locations and no other source of entertainment is available and if you persist in your erroneous order whereby WGY will be eliminated, our 50 to 75 employees will be deprived of practically all of the pleasure of radio which they now enjoy.

I believe that I express the strong opinion of all Northern New York when I request that you withdraw the ruling which will eliminate WGY during the evening hours and

restore the status quo, whereby we receive good service and excellent programs.

Yours very truly,

(Signed) J. H. McLEAR,
President.

WGY.

For your information.

J. H. M.

Copy.

243 F A D A RADIO.

A. L. Damon, Exclusive Agent.

Rochester, N. H., September 24, 1928.

To the Managing Director Station WGY,

Schenectady, New York.

DEAR SIR:

If it is true, as various recent newspaper articles would apparently bear out, that WGY is likely to suffer a serious curtailment of its present operating schedule by order of the Federal Radio Commission, I would like to join in the protest against any action of this nature.

To those living within the limits of the metropolitan districts where reception, as a whole, is confined to local stations, the issue may not seem of particular importance. But, to those listeners who are located outside of such areas, good radio reception is determined largely by the functioning of stations which are not only capable of but do furnish programs that represent the utmost, both in quality of the offering itself and quality of broadcasting. Even in the so called rural districts strictly good reception, with the type of receiving set within the means of the ordinary buyer, will average as possible only from a few stations. WGY is one of them. A listener in the country may pick up fifty to seventy-five stations, but still, real worth while reception is usually confined to a comparatively few.

As an ardent radio fan and also a dealer over some little period — feel that I am somewhat qualified to make the above statement. Will amplify it by stating that in this

part of New England, and I personally know it holds true in other sections, WGY is a standby.

During the day, it is admitted that we depend largely on more local stations. At night, however, the condition is reversed. Unless a radio listener is possessed of an extremely high grade and selective receiver, the more local stations, such as Boston, etc., are out of the picture entirely. Even tho they can be heard, under anything like normal conditions, the reception, from the standpoint of quality, is not to be compared with that from WGY. If this holds true in other sections of the East, other than the metropolitan districts, and we also take into consideration the vast amount of research work done by the WGY in furtherance of the interests of better broadcast reception, it would indeed seem that any curtailment of their present service would be to the detriment of thousands of radio listeners in the territories referred to. I feel that I speak for countless others in making these statements.

If it will help a little bit to use this letter, you are welcome to do so.

Very truly yours,

(Signed) A. L. DAMON.

ALD/B.

244 Copy.

14 Summer Street, Adams, Massachusetts.

Station W.G.Y.,
General Electric Co.,
Schenectady, N. Y.

GENTLEMEN:

When the announcement was made that we were to be robbed of the services of your great station—the greatest of all stations—we were inclined to believe that behind such a preposterous arrangement must be W.G.Y. itself. We were greatly relieved a few nights ago after waiting patiently for some overture on the part of the station to know that after all W.G.Y. still rang true.

We were among the first in this section to have a radio—soon after W.G.Y. went on the air. For nearly six years we have listened daily to your station; it has been and still

is our standby. While we have W.B.Z. at an equidistance we do not have any such service as W.G.Y. gives us.

The listeners in Adams are unanimous in agreeing that W.G.Y. is the only station which cuts thru the static so peculiar to the mountain section in which we live. W.G.Y. is the only station upon which we can rely for uniform reception day or night.

To take W.G.Y. away means evenings of the same kind of unsatisfactory reception we get nights after W.G.Y. signs off. We have the latest model Federal 6 tube set and we have no difficulty getting other stations—sometimes we've had K.F.I.—but we aren't fishermen, for we can get the choicest programs by turning the dial to W.G.Y. and letting the station and the National Broadcast do the rest. There is too much fading and interference from other stations and we would not care much for radio if W.G.Y. were to be eliminated.

I am writing our congressman Allan T. Treadway who I understand is already interested; I have written Mr. Lunn at the request of my 85 year old grandmother who is blind and who has been kept alive by the radio. If I can be of further service to you in any way do not hesitate to write me.

Just now we are interesting ourselves in low wave broadcasting and had looked forward to hearing W.G.Y. broadcast European programs.

Respectfully,

FLORENCE DE L. BOOM.

245 Copy.

H. Stewart Bosson, Real Estate & Insurance, Meredith Neck, on Lake Winnipesaukee, Meredith, New Hampshire.

Telephone Connection.

September 24, 1928.

Broadcasting Station W G Y,
Schenectady,
New York.

DEAR SIRS:

I understand that a tentative plan is to somewhat curtail, by the Radio Commission, your services to the public.

I wish to register my protest against anything which will make it impossible for me to receive from your station the reception I have had in the past. Undoubtedly a great many people in New Hampshire use W G Y in order to get WEAF programs.

Yours very truly,

H. STEWART BOSSON.

HSB:EG.

246 Copy.

National Life Insurance Company, Montpelier, Vermont.

A. B. Bisbee, M. D., Second Vice-President and Medical Director; E. A. Colton, M.D., Assistant Medical Director; G. E. Allen, M. D., Assistant Medical Director.

September 26, 1928.

Radio Station W.G.Y.,
Schenectady,
New York.

GENTLEMEN:

We have noted with concern the newspaper reports that your broadcasting hours are to be seriously curtailed after early November. We also heard the remarks from your Station over the air.

For the past two years we have had consistently good reception from your Station and we have also felt pleased with the character and quality of your programs. There is no other station on which we can depend for service as we can on W.G.Y. During the flood conditions in November, 1927, we believe W.G.Y. rendered very valuable service to the afflicted area. It seems to me that it would be a serious mistake to any way detract from your Station's activities.

Yours very truly,

E. A. COLTON.

EAC/M.

Copy.

247 [SEAL.]

The Liverpool and London and Globe Insurance Co., Ltd.
Entered United States 1848.

Phipps & Dolson, Agents, 1260 Liberty Street, Franklin, Pa.

Losses Paid in Great Conflagrations: San Francisco, 1906, $4,522,805; Chicago, 1871, $3,239,491; Boston, 1872, $1,427,290; Baltimore, 1904, $1,051,543.

September 25, 1928.

Station W. G. Y.,
Schenectady, N. Y.

GENTLEMEN:

I heard a gentleman speaking from your station last evening in regard to some ruling of the Radio Commission that would take W. G. Y. from the air. I get great pleasure from your station and can get you frequently when it is impossible to get W. J. Z. or W. E. A. F.

I trust that the Radio Commission may be induced to change its ruling so that we may continue to get the pleasure that we now do, from your station.

Sincerely yours,

C. B. DOLSON,
Franklin, Pa.

Copy.

248 A. A. Dekin & Sons, Funeral Directors, Furniture, Lowville, New York.

September 25th, 1928.

Station WGY,
General Electric Co.,
Schenectady, N. Y.

GENTLEMEN:

I wish to enter protest against the change of WGY to a part time station.

WGY is the only station we can rely upon, in this Northern section, for dependable Radio.

Very truly yours,

A. A. DEKIN.

Copy.

249 Gloversville Business School.
A. A. Burr, Proprietor.

Bookkeeping, Arithmetic, Penmanship, Salesmanship, Commercial Law, Spelling, Correspondence, Shorthand, Typewriting, and Banking.

Gloversville, N. Y., September 26, 1928.

W. G. Y. Broadcasting Station,
Schenectady, N. Y.

GENTLEMEN:

I wish to express my protest which the Radio Commission is contemplating to shut off 1,000,000 listeners from your station. The service has been first-class and I feel that it would ruin the sale of radio equipment in this section. Every one I meet is protesting against it.

If this measure is put through there will be a great many shut off entirely from the radio service. I am not a radio dealer, but I am intensely interested in the welfare of this part of the state and in radio service.

Yours cordially,

AAB/C. A. A. BURR.

(Seal) Accepted Commercial School, National Association.

The Emblem of the Efficient School.

Copy.

250 Collinsville, Conn., Sept. 25, 1928.

Station W. G. Y.,
Schenectady, N. Y.

To whom it may concern:

Though a resident of Connecticut I surely hope something may be done to allow your station the same wave length and full time broadcasting.

We are 15 miles from Hartford (WTIC) by automobile (not as the crow flies), 28 miles from Springfield WBZ and 150 miles from New York City.

I do not know the distance from your station but it is the most satisfactory of all.

While we have always been able to get WEAF, WJZ, WOR and other stations I usually get most of the chain programs from WGY as it comes in much better, with less interference, less battery power and therefore less static and trouble.

Situated as we are if we were unable to get any other station except WGY we would still be well provided for with a few possible exceptions.

Your orchestra programs from hotels direct through your station are always fine.

Your plays have been very entertaining and many other things of interest.

I must also mention the clarity of your announcers. Hoping my protest will help with many others and best wishes for good luck, I am.

Very sincerely,

SARAH D. DARLING.
(MRS. CHARLES S.)

Copy.

251

261 Main St.,
Binghamton, N. Y., Sept. 24, 1928.

Station WGY:

Please enter my protest, against the Commission, deciding to put WGY on a part time basis.

If this plan is carried thru, it will reduce the usefulness of my set, 75%, as we simply are unable to get any satisfactory programs until real late at night, unless WGY is broadcasting, my set is not of the small type either.

I feel that an injustice is being done to us that have always been dependent on WGY for satisfactory program reception, and am sure that there are many more here in Binghamton of the same attitude.

Have the Commission come to Binghamton and make tests, I am sure they will understand why we want WGY.

A. D. BELT.

252 Copy.

C. E. Buchanan, M. D., Claremont, N. H.

Sept. 29, 1928.

I have not got a radio but shall have one within a month if your station continues to function in the future as it has in the past, if it does not I shall have no radio as I know from long observation that your station is the only one that we can depend on here and in this vicinity for many miles,

Yours truly,

C. E. BUCHANAN,

To Station W.G.Y., Schenectady, N. Y.

253 Copy.

Pottsville Fertilizer Works, O. L. Romberger, Proprietor.

Manufacturers of Meat Scraps, Tallow, and Grease. Hides and Tallow, Automobile Tires.

Office and Works: "Seven Stars."

P. O. Box 140, Pottsville, Penna. Telephone: No. 47-J, Schuylkill Haven Exchange.

Sept. 26th, 1928.

Federal Radio Commission:
Washington, D. C.

DEAR SIRS:

This is written to voice my opposition to the Radio Commission's ruling; Relative to the Discontinuing of W.G.Y.'s Evening and Night broadcasting. It has been a great source of Entertainment and Education in this Locality; And is not fair to be deprived of it.

It is customary in this locality to get W.E.A.F. Programs thru W.G.Y. as reception is much better thru W.G.Y. With the discontinuing of W.G.Y. the Nat. Broad. Co., Station W.E.A.F. will be closed in this locality.

Respectfully,

(MRS.) O. L. ROMBERGER.

254 Copy.

The Smith Co., Scranton, Penna.

Outdoor Advertising.

Signs of All Kinds, Lettering for All Purposes.

Sept. 27, 1928.

Station W. G. Y.,
General Electric Co.,
Schenectady, N. Y.

GENTLEMEN:

Having learned with regret that the Radio Commission contemplates interfering with the broadcasting of your highly enjoyable programs, I herewith desire to voice my emphatic protest of this action.

Your programs are interesting, educational; the best of talent is employed and, further, W. G. Y. will come in strong when other stations are very often inaudible.

It would be unfair on the part of the Radio Commission to interfere materially with your station. In this I know I am joined with by many thousands and thousands of your "listeners in" who have the same sentiments but will fail to express them to you in writing.

With best wishes for future success and "existence," I am

Sincerely,

FAY D. CAVELL.

255 Copy.

Lee, Lenox, Stockbridge, Tyringham and Otis,

Fine Book and Commercial Printing.

The Berkshire Cleaner, Lee, Mass., in the Berkshire Hills.

Established 1858.

Maitland P. Foster, Publisher; William H. Spear, Editor and Manager; Leon Nettleton, Local Editor.

[SEAL.]

State Line, Mass., September 23, 1928.

Manager of W.G.Y. Radio Station of General Electric Co., Schenectady, N. Y.

DEAR SIR:

It is with sincere regret that the many radio listeners of this region, dependent on the excellent service of your radio station, learn that this service is to be curtailed by act of the Radio Commission, and that after a state date we are to be deprived of evening service by your station.

We consider this an outrageous shame and one that shows very little comprehension on part of the Radio Commission of the needs of this region for a broadcasting station such as W.G.Y., has proved itself to be. It leaves many radio listeners stranded, so far as service goes, this elimination of W.G.Y. whose splendid service so many of us have depended upon not only for the broadcasting of its own fine programs, but for the transmission of the New York programs, now so much enjoyed.

With your broadcasting service cut out, it is going to be a Saharah of desolation, so far as radio transmission goes, for much of this region, now served by your station. Many of us are unable to get W E A F of New York independently, due to peculiar air conditions, where we tune in on it alone, and when on those rare occasions where we do get it independently, it comes so faint and indistinct as to be utterly unsatisfactory.

There was a time when we could get W.J.Z. and KDKA and WBZ and some good Chicago stations on our radios,

but latterly, since some of the members of this radio commission have been "monkeying" with the air waves, we can get little or nothing from these stations, and with W.G.Y. cut out, the radio reception bids fair to be worthless to us.

Isn't it possible for W.G.Y. to get some satisfactory adjustment of this matter that will not deprive scores of listeners in, who have invested in radio sets, which with the W.G.Y. elimination, soon bid fair to be worse than useless. People have money thus tied up upon which they cannot realize, if this deal goes into effect.

256 It seems to scores of us in this section, that the radio commission ought to have brains enough to sidetrack this proposed deal so it will not be carried out. If they would please a large number of radio listeners they will show a grain of common sense and let W.G.Y.'s wave length alone.

Sincerely yours,

WILLIAM H. SPEAR,
Box 47, State Line, Mass., Berkshire County, in behalf of scores of other radio listeners.

257 Copy.

Tri-County Road Association, completing the Williamsport-Elmira Road, making a perfect highway, Washington to Montreal.

John D. Allison, President, Roaring Branch, Pa.; William S. Millener, Secretary-Treasurer, Williamsport, Pa.

Executive Committee: A. H. Vosburg, Wellsboro, Pa.; O. H. Evans, Wellsboro, Pa.; D. F. Pomeroy, Troy, Pa.; E. F. Innes, Canton, Pa.; H. W. Jones, Ralston, Pa.; F. M. Sprout, Muncy, Pa.

Williamsport, Pa., Sept. 27th, 1928.

The W.G.Y. Broadcasting Station,
Schenectady, N. Y.

GENTLEMEN:

We were somewhat surprised to learn that the Federal Radio Commission had given some thought to silencing

W.G.Y. station during the evening hours. W.G.Y. is one of the very few stations giving a remarkably clean program that the general public can always get fair reception from even when the conditions are unfavorable.

There is no argument in your case if put before the commission in an intelligent manner, and to my mind, there is no one better qualified to do this than the General Electric Corporation.

Very respectfully,

JNO. D. ALLISON.

258 Copy.

Miss Eva G. Smith, 80 Summer Street, Barre, Vermont.

Sept. 25, 1928.

Station W. G. Y.,
Schenectady, N. Y.

DEAR SIR:

We were astounded to hear last night that W. G. Y. was to be a part time station. If this is so, we may as well sell our radio for it is the only station we can depend upon. Since I did not get the address of the one to write to, I am sending this to the station and wish you would forward it as a protest.

Very truly,

EVA G. SMITH.

259 Copy.

Herbert F. Millard, Northfield, Mass.

September 26, 1928.

Radio Station W-G-Y,
Schenectady, N. Y.

DEAR SIRS:

W-G-Y being one of our most dependable stations and the one on which we largely rely for information and entertainment it is with sincere regret and a feeling of personal loss that we note that you are liable to be ruled off the air during the evening, and we hope that arrangements may

be made that will avoid this curtailment of our privileges, and insure the continuance of your evening programs.

Yours respectfully,

H. F. MILLARD.

260 Copy.

Dean S. Drake, M. D., White River Junction, Vermont

September 25th, 1928.

Radio Station "W.G.Y.,"
Schenectady, N. Y.

My Dear Sirs:

I understand there is some possibility of limiting your station time "on the air."

I want to tell you that my *very best* results are through "W.G.Y." and I want to register my earnest protest against any curtailment of your stations privileges.

We all, in this section, would *sorely miss* the splendid entertainment we enjoy through "W.G.Y."

Last evening, especially, the Opera, Rigoletto, was *simply magnificent.*

Hoping that we may continue to enjoy your fine programmes,

I am, Very truly yours,

D. S. DRAKE.

261 Copy.

47 Benton Avenue, Waterville, Maine, Sept. 28, 1928.

Radio Station W.G.Y.,
Schenectady,
New York.

This station gives us the best reception of any station on our radio. If this station were to be deprived of its evening broadcasting it would indeed be a great loss to us, as far as the radio is concerned.

The station in our own state gives us good reception but W.G.Y. is our best all-around station.

Hoping this station will continue its evening broadcasting, I am

Yours very truly,

(Miss) FLORENCE HARDING.

262 Copy.

The Franklin Fire Insurance Company of Philadelphia.

New York Office: Fifty-nine Maiden Lane.

Charles L. Tyner, President; Edward L. Warren, Agent.

Bucksport, Maine, Sept. 28/28.

Manager Station W.G.Y.

DEAR SIR:

Re the proposed scheme of putting W.G.Y. on part time is to my mind the rankest kind of discrimination. I shall protest vigorously against this raw deal being handed you. We all in this part of the woods cannot get along without your splendid service and excellent programs. For weeks in the Summer W.G.Y. is the only station we can depend on getting. This proposed change is a great injustice to the people of Eastern Maine.

Yours truly,

[SEAL.] L. E. WARREN.

"You may delay, but time will not."—Benjamin Franklin.

263 Copy.

Burlington, Vt., Sept. 25, 1928.

Radio Station WGY,
Schenectady, N. Y.

DEAR SIR:

I am one of the majority of radio fans that want the continuance of your station, because with your station silent, our radio sets will be silent, as your station is the only one that we can "get" consistently.

To help our cause along, I have written a letter of protest to each of our senators and congressmen, concerning the unjust ruling of the Federal Radio Commission.

Hoping that we will not lose our best and most reliable friend, I am

Respectfully yours,

RALPH W. LAFAYETTE,
3 No. Champlain St., Burlington, Vermont.

264 Copy.

Syracuse Steam Generator Inc., Manufacturers Ideal Steam Generators, Ideal Laundry Steam Power Press-Ironers, South Avenue and Grant Place.

Syracuse, N. Y., Sept. 25, 1928.

Radio Station WGY,
Schenectady, N. Y.

GENTLEMEN:

It is with deep regret that we learn of the proposed change in your wave length.

Yours is one of the most dependable stations we tune in on, also the easiest to eliminate when we are tuning for other stations.

We the undersigned ask as a special favor that no change be made.

We remain
Yours truly,

WM. J. LEWIS.
DORWIN F. GIVEN.

Your station is the most dependable. No other station in that dial than your station come- in on 45°. I have a Day Fray 42 or 47 tune you out.

265 Copy.

Evans & Company, Golden Fleece Mills, Manufacturers of Australian Lamb's Wool Waddings and Battings, Lockport, N. Y.

September 25th, 1928.

GENTLEMEN:

I earnestly hope that the order causing you to close after dark during this winter will be canceled, for the reason I and my family enjoy your programs very much, and they

come in better than WMAK of Buffalo. So long as you have been broad casting for some time and every thing was or rather worked out fine, I can't see why the change. I earnestly hope you will win in your endeavor to keep on as you are now. I live in Olcott and scarcely an evening but what we have tuned in on your programs.

The majority of the listeners do not listen until after 7 P. M. anyway. As the majority have business of some-kind that they attend to during the day.

Yours, very truly,

E. R. VANALLEN,
Olcott, N. Y.

266 From W. T. Meenam News Bureau

General Electric Company, Schenectady, N. Y.

WGY

Notice: Evening programs of WGY will also be transmitted by 2XAF on 31.4 meters, Monday, Tuesday, Thursday and Saturday, and by 2XAD on 21.96 meters, Monday, Wednesday, Friday and Sunday.

Television Schedule: Tuesday, Thursday and Friday, 1:30 p.m. to 2:00 p.m.; Sunday, 10:15 to 10:30 p.m., E.S.T., 379.5 meters and 21.96 meters; Tuesday, 11:30 to 12:00 p.m., 379.5 and 31.4 meters.

The WGY short wave stations are developmental stations and this schedule may be changed or discontinued at any time.

Sunday, October 21.

WGY (Schenectady, N. Y.)

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

10:30 a.m. —Service of First Presbyterian Church, Rev. W. H. Hopkins, pastor [Albany, N. Y.].

1:30-2:00 p.m. —United Radio Corporation program [New York].
3:30-4:00 p.m. —Organ recital, Memorial Chapel, Union College, by Elmer Tidmarsh.
4:00 p.m. —Men's Conference, Bedford Branch, Y.M.C.A., Dr. S. Parks Cadman, speaker [Brooklyn, N. Y.].
5:30 p.m. —Acousticon program [New York].
6:00-6:30 p.m. —"Stetson Parade"—American Legion Band [Boston, Mass.].
6:30 p.m. —Musical program [New York].
7:00 p.m. —Lehigh program [New York].
7:30 p.m. —Capitol Theatre program [New York].
9:00 p.m. —Address, "Our Government," David Lawrence, editor, *United States Daily* [Washington, D. C.].
9:15 p.m. —Atwater Kent Hour [New York].
10:15-10:30 p.m.—Television transmission.

267 Monday, October 22.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-8:50 a.m. —"Cheerio" talk and music.
11:15-11:30 a.m.—Radio Household Institute [New York].
11:55 a.m. —Time signals.
12:00 m. —Weather report.
12:02 p.m. —Produce market report.
12:10 p.m. —Farm flashes.
12:30 p.m. —New York stock reports.
12:45 p.m. —Weather report.
2:00 p.m. —French Lesson, Madame Marie Chantemerle.
2:30-2:45 p.m. —WGY Household chats.

6:00 p.m. —Democratic state committee program [New York].
6:30 p.m. —Stock reports, produce market report, farm forum and news items.
7:00 p.m. —Mutual Savings Bank program [New York].
7:30 p.m. —Musical program.
8:00 p.m. —Republican national campaign.
8:30 p.m. —A. & P. Gypsies [New York].
9:30 p.m. —General Motors Family party [New York].
10:30 p.m. —Correct time.
10:30 p.m. —Musical program.
11:00-12:00 p.m.—Sax Smith and His Cavaliers [Rochester, N. Y.].

Tuesday, October 23.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-8:50 a.m. —"Cheerio" talk and music.
11:15-11:30 a.m.—Radio Household Institute [New York].
11:30-11:45 a.m.—Republican national campaign.
11:55 a.m. —Time signals.
12:00 m. —Weather report.
12:02 p.m. —Produce market report.
12:10 p.m. —Farm flashes.
12:30 p.m. —New York stock reports.
12:45 p.m. —Weather report.
1:30 p.m. Television transmission.
2:00 p.m. —Organ recital, Emlyn Jones, Proctor's Theatre [Schenectady, N. Y.]
2:30-2:45 p.m. —WGY Household chats.

6:00 p.m. —Stock reports, produce market report, farm forum and news items.
6:30 p.m. —Dinner music, Hotel Ten Eyck [Albany, N. Y.].
7:00 p.m. —Voters' Service [Washington, D. C.].
7:30 p.m. —Soconyland sketches [New York].
8:00 p.m. —National Radio Institute program [New York].
8:30 p.m. —Seiberling Singers [New York].
9:00 p.m. —Eveready Hour [New York].
10:00 p.m. —Clicquot Club Eskimos [New York].
10:30 p.m. —Correct time.
10:30 p.m. —Vaughn DeLeath with novelty orchestra.
11:00 p.m. —Palais d'Or orchestra.
11:30-12:00 p.m.—Television transmission.

Wednesday, October 24.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-8:50 a.m. —"Cheerio" talk and music.
10:00-11:00 a.m.—National Home Hour [New York].
11:15-11:30 a.m.—Radio Household Institute [New York].
11:30 a.m. —Democratic national campaign.
12:00 m. —Weather report.
12:02 p.m. —Produce market report.
12:10 p.m. —Farm flashes.
12:30 p.m. —New York stock reports.
12:45 p.m. —Weather report.
2:30-2:45 p.m. —WGY Household chats.
6:00 p.m. —Democratic state committee program [New York].

6:30 p.m. —Stock reports, produce market report, farm forum and news items.
7:00-7:30 p.m. —"Mr. and Mrs. Skits."
7:30 p.m. —"La Touraine Tableau." [New York].
8:00 p.m. —*Woman's Home Companion* Hour [New York].
9:00 p.m. —Ipana Troubadours [New York].
9:30 p.m. —Palmolive Hour [New York].
10:30 p.m. —Democratic national campaign.
11:00 p.m. —Correct time.

Thursday, October 25.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-8:50 a.m. —"Cheerio" talk and music.
11:15-11:45 a.m.—Radio Household Institute [New York].

268

11:55 a.m. —Time signals.
12:00 m. —Weather report.
12:02 p.m. —Produce market report.
12:10 p.m. —Farm flashes.
12:30 p.m. —New York stock reports.
12:45 p.m. —Weather report.
1:30 p.m. —Television transmission.
2:00 p.m. —Hotel Van Curler orchestra.
2:30-2:45 p.m. —WGY Household chats.
2:45 p.m. —One-act play, WGY Matinee Players.
6:00 p.m. —Stock reports, produce market report, farm forum and news items.
6:30 p.m. —Dinner music, Hotel DeWitt Clinton [Albany, N. Y.].

7:00 p.m. —"Footnotes," T. Arthur Cohen.
7:02 p.m. —Dinner music, Hotel DeWitt Clinton [Albany, N. Y.]
7:30 p.m. —WGY agricultural program.
8:00 p.m. —Forhan Company program [New York].
8:30 p.m. —Hoover Sentinels [New York].
9:00 p.m. —Republican national campaign.
9:30 p.m. —"With the Joneses."
10:00 p.m. —Halsey Stuart presentation [New York].
10:30 p.m. —Correct time.
10:30 p.m. —Vaughn DeLeath with novelty orchestra.
11:00 p.m. —Palais d'Or orchestra.
11:30 p.m.-12:30 a.m.—Organ recital, Floyd Walter, Strand Theatre [Albany, N. Y.].

Friday, October 26.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-8:50 a.m. —"Cheerio" talk and music.
10:00-11:00 a.m.—National Home Hour [New York].
11:15-11:45 a.m.—Radio Household Institute [New York].
11:55 a.m. —Time signals.
12:00-12:15 p.m.—Forhan Company program.
12:15 p.m. —Weather report.
12:17 p.m. —Produce market report.
12:25 p.m. —Farm flashes.
12:45 p.m. —New York stock reports.
1:00 p.m. —Weather report.
1:30 p.m. —Television transmission.

2:00 p.m. —Phil Romano and his orchestra, Hotel DeWitt Clinton [Albany, N. Y.].
2:30- 2:45 p.m.—WGY Household chats.
6:00 p.m. —Stock reports, produce market report, farm forum and news items.
6:30 p.m. —Dinner music.
7:25 p.m. —Health talk.
7:30 p.m. —General Electric Turbine Department program.
8:30 p.m. —Musical program.
9:00 p.m. —Musical program [New York].
9:30 p.m. —Correct time.
9:30 p.m. —Larry Brier's Tuneful Troupe [New York].
10:00-11:00 p.m.—National Broadcasting and Concert Bureau Hour [New York].

Saturday, October 27.

WGY (Schenectady, N. Y.).

General Electric Company.

790 Kilocycles (379.5 Meters).

Channel 79.

Eastern Standard Time.

6:45-8:00 a.m. —Setting-up exercises.
8:30-9:00 a.m. —"Cheerio" talk and music.
11:15-11:30 a.m.—Radio Household Institute [New York].
11:55 a.m. —Time signals.
12:00 m. —Weather report.
12:30 p.m. —New York stock reports.
12:45 p.m. —Weather report.
2:15 p.m. —Football game—"Dartmouth-Harvard" [Cambridge, Mass.].
7:00 p.m. —Statler's Pennsylvanians, Johnny Johnson, director [New York].
7:30 p.m. —Musical program, Hotel Sagamore [Rochester, N. Y.].

8:00 p.m. —Musical program [New York].
8:30 p.m. —"The Park Bench" [New York].
9:00 p.m. —"Variety Hour" [New York].
10:00 p.m. —American Tobacco (Lucky Strike) program [New York].
11:00 p.m. —Correct time.
11:00-12:00 p.m.—Dance program [Buffalo, N. Y.].

269 Original manuscript contained as an exhibit the October 14, 1928 WGY program, but insufficient copies make necessary the substitution of the program of October 21st which is substantially the same.

270 Federal Radio Commission.

In re the Matter of Application of WGY for License Renewal.

A. J. Horn, being duly sworn, deposes and says as follows:

1. I reside at 115 Elmer Avenue, Schenectady, N. Y., and am serving as Secretary of the Schenectady Chamber of Commerce, which position I have held since August 1, 1926, having come to Schenectady from Ohio where I filled a similar position. In addition to being Secretary of the local Chamber of Commerce, I am at this time, among other official positions, President of the New York State Chamber of Commerce Secretaries, a member of the New York State Aviation Conference and Director of Schenectady Airport, Inc.

2. The Schenectady Chamber of Commerce has a membership of approximately 1050 and is representative of the retail, professional, industrial and general business life of the community. It has for six years played an important part in the civic and business affairs of Schenectady and is appealed to in any matters of community-wide interest.

3. On the afternoon of Sept. 13, 1928, I read in the Schenectady Union Star, the afternoon paper of this city, a news item carrying the information that due to a recent ruling of the Federal Radio Commission WGY would have to resort to part-time broadcasting after November 11th. Knowing that this station has been a pioneer in radio broadcast-

ing and knowing that it served a large number of people in northern and central New York, I immediately felt that this situation would be serious to the general public. I was soon besieged with calls from our members and other citizens of Schenectady asking what we were going to do about it.

4. On Sept. 14th, the following day, I sent the following telegram:

"Federal Radio Commission,
Washington, D. C.:

Have read in public press that after November eleventh WGY must be silent evenings stop. In order that we may study this matter will you please mail us exact ruling covering this situation and reasons therefor.

A. J. HORN,
Secretary Schenectady Chamber of Commerce."

No reply has yet been received to this telegram. Our office was soon besieged with telephone calls from local people and also from other cities. Many telegrams and letters were being sent to us from different localities in New
271 York, Vermont, Massachusetts, and Connecticut asking what was being done and suggesting that concerted action ought to be taken.

5. On Sept. 17th, the Board of Directors of the Schenectady Chamber of Commerce held a special meeting at which this subject was discussed informally during the meal and the Board was acquainted with the number of inquiries and protests which were being received at the Chamber offices. The following is an extract of the minutes of that meeting:

"*Minutes of a Joint Meeting of the Board of Directors of the Schenectady Chamber of Commerce and the Precampaign Committee, Held at Hotel Van Curler, Monday Noon, September 17th, 1928, at 12:15 O'clock.*

Absent: Directors Auer, Barringer, Brown, Dalton, Eveleth and McColl.

Present: President Gaffers, Vice-President Magarvey, Treasurer Allen, Directors Redmond, Starsenski, Ten Eyck

and Secretary Horn. There was also present ten members of the Pre-Campaign Committee and Mr. Wm. A. Hart, Director of the campaign.

Prior to the statement of the special purpose of the meeting, President Gaffers asked the Secretary to state what had been done in the WGY matter. Following this, on motion of Mr. Magarvey, seconded by Mr. Redmond, it was voted to have the Schenectady Chamber of Commerce voice a protest with the Federal Radio Commission and to have the President appoint a committee to formulate plans for an organized protest.

President Gaffers later appointed the following Special Radio Committee of the Chamber, (of which I automatically became Secretary ex-officio):

Special Radio Committee.

J. M. Coffey, Chairman, Asst. Manager, Mica Insulator Co.

Dr. John H. Collins, Health Officer.

Hon. Frank Crowther, Congressman.

Hon. Henry C. Fagal, Mayor.

Dr. Philip L. Frick, Pastor, First Methodist Church.

Chief Wm. H. Funston, Chief of Police.

Dudley T. Hill, Editor, Schenectady Gazette.

Clarence Johnson, Manager, Schenectady County Farm Bureau Assn.

Thomas H. Leary, Printer, and representing the American Legion.

Walter H. Main, Editorial Writer, Schenectady Union Star."

6. This committee immediately held a meeting and discussed the general situation. Sufficient protests had come in and requests for action were received from so many communities that this committee decided to hold a general meeting in Schenectady, Saturday noon, Sept. 29th. There were invited to this meeting representatives of about 100 cities, chosen more or less at random from the area which from a general knowledge of the situation we thought was being served by WGY. These representatives were asked to come here as our guests and the Schenectady Cham-

272 ber of Commerce furnished them a luncheon at noon.

Following the meeting, those who cared to do so were, at our request, allowed to visit WGY Studio and the broadcasting station at South Schenectady.

7. At this meeting a general committee of twelve was nominated by a Nominating Committee following a request from the floor that such action be taken. The following committee was selected by those present and this committee later elected its own officers:

Harry L. Ford, Chairman, Burlington, Vt.
Wm. T. Barbre, Secretary, Pittsfield, Mass.
T. J. Andrew, Utica, N. Y.
R. J. Braydon, Glens Falls, N. Y.
Westcott Burlingame, Albany, N. Y.
Mayor Cornelius F. Burns, Troy, N. Y.
J. M. Coffey, Schenectady, N. Y.
Mark H. Fish, Chestertown, N. Y.
Ernest. C. Gould, Watertown, N. Y.
Wm. F. Herman, Oneida, N. Y.
John P. G. McPhoe, Hudson, N. Y.
Chas. H. Schenck, Amsterdam, N. Y.

After this meeting the following telegram was sent to the Federal Radio Commission:

"Ira E. Robinson,
Chairman Federal Radio Commission,
Washington, D. C.:

One hundred ten representatives of thirty eight communities in meeting at Hotel Van Curler here today by unanimous vote protest the restriction of WGY broadcasting because this area is entirely dependent upon WGY for satisfactory radio service stop. Communities represented follow: Albany Schenectady Amsterdam Ballston Spa Chestertown Cobleskill Cambridge Cohoes Greenwich Glens Falls Gloverville Luzerne Little Falls Hudson Hoosick Falls Ilion Lake George Mechanicville Northville Plattsburgh Rome Saratoga Troy Schuylerville Utica Watertown Waterford Watervliet Schaghticoke Herkimer Warrensburgh Fort Edward stop. In Massachusetts: Dalton North

Adams Pittsfield stop. In Vermont: Bennington Burlington Rutland.

HARRY L. FORD,
Burlington, Vt.,
Chairman WGY Listeners' Protest Committee."

To my best knowledge no reply has yet been received by Mr. Ford to this telegram.

8. On Tuesday, Sept. 18th, the Common Council of the City of Schenectady passed the following resolution:

"Alderman Dunn offered the following:

Whereas, the ruling of the federal radio commission, unless rescinded, will restrict the operation of Schenectady's famous broadcasting station, WGY, to a very limited period each evening, commencing November 11, 1928, and will impair its usefulness: and

Whereas, WGY is recognized throughout the world as one of the most powerful, most reliable and most serviceable broadcasting stations to be found anywhere; and

Whereas, it has proved itself of inestimable worth
273 in broadcasting helpful discourses from the State Department of Health and other service agencies interested in the dissemination of valuable information; and

Whereas, the afflicted in hospitals and sanatoriums, the shut-ins, numbering hundreds of thousands have come to recognize the WGY station as to a source of comfort and pleasure to them, because of regular broadcasts of a very high quality; and

Whereas, the friends of WGY can be counted in the millions, all of whom are aggrieved to learn of the ruling of the radio commission and are eagerly awaiting a change of the order; therefore be it

Resolved, that the Common Council of the City of Schenectady, believing there is universal demand from millions of radio enthusiasts for a reconsideration of the decision of the federal radio commission and because of the belief that an irreparable injury and injustice are being unnecessarily worked upon countless residents of the eastern part of the United States, hereby emphatically protests the rul-

ing of the radio commission and in its official capacity as representing the home city of the General Electric Company's famous broadcasting station, calls upon the commission to reconsider and to rescind its action, and further

Resolved, that the Common Council of the City of Schenectady urges Representative Frank Crowther, Mayor Henry C. Fagal and Corporation Counsel Carleton H. Lewis to use their utmost efforts in behalf of this movement, the Common Council guaranteeing its moral and substantial support to any such efforts.

Adopted by the following vote (a majority of all members of the Common Council voting in the affirmative): Ayes—Aldermen Herman, Greene, Rinaldi, Kirkwood, Etkin, Cunningham, Yates, Cardwell, Broderick, Dunn, Swart, De Forest, Anker, Wright. Total–14. Nays–None.

The President declared the resolution adopted."

9. Because of the many ways in which knowledge was coming to me of the fact that the public would be seriously injured by the Federal Radio Commission's ruling regarding WGY, I issued a statement to the Daily Gazette, the morning newspaper, which appeared Saturday morning, Sept. 29th. A copy of the same is hereto attached and marked "A."

10. On Sept. 28th, I wrote to the Federal Radio Commission calling attention to the action of the Chamber of Commerce and of the Common Council, and also forwarding a petition which was voluntarily signed at the Altamont Fair by almost 600 persons representing 69 localities. A copy of this letter is attached and marked "B".

On October 5th, I again wrote the Commission that we were sending them an abundance of material and classified the material in this letter. This material originated in more than 100 cities in New York State and nearly 100 in Massachusetts, Vermont, Connecticut, New Hampshire, Rhode Island and Pennsylvania. A copy of this letter is attached and marked "C".

On October 8th, I wrote another letter to the Commission advising them that we were shipping them additional material, classifying the same. This material also

274 represented a wide area in New York State, Massa-

chusetts, Vermont, Connecticut, Maine, New Hampshire and Pennsylvania, and included among other petitions one from Glencliffe, New Hampshire, signed by 24 inmates of the New Hampshire State Sanatorium. A copy of the letter of October 8th is attached and marked "D".

11. In addition to the 14 telegrams mentioned in my letter of October 8th, we have received 64 more from cities in western Massachusetts, of which the following is a typical one:

North Adams, Mass., 5, 1928, Oct. 5 P. M., 1:36.

Chamber of Commerce,
Schenectady, N. Y.:

In form Federal Radio Commissioner for me that present hours of broadcasting station WGY should be continued withour restriction that is the only station that western Massachusetts can depend upon for program at all times.

W. H. PRITCHARD,
President North Adams National Bank.

To this date no reply has been received from the Federal Radio Commission to any of our letters, telegrams and no acknowledgment of receipt of material has been received. We did receive the mimeographed letter which we understand was sent to individuals or organizations who had entered a protest to the Commission.

12. From personal conversation with representative citizens of other communities, from the number and nature of petitions, protests and individual letters which have come in and are still being received in spite of the fact that we have never asked that such material be sent to us, I am firmly convinced that a very serious wrong would be caused by the Federal Radio Commission's ruling to the several million people who depend entirely upon WGY for constant satisfactory service. Regardless of the quality of the receiving sets used, this area can in no other way receive as good and dependable service as WGY is now giving them.

A. J. HORN.

STATE OF NEW YORK,
County of Schenectady, ss:

Subscribed and sworn to before me this 20th day of October, 1928.

HORACE W. RAYMOND,
Notary Public.

275 "A."

Statement of Sec'y A. J. Horn in Schenectady Gazette, Saturday Morning, September 29, 1928.

"While I do not wish to enter into controversy with O. H. Caldwell, the member of the Federal Radio Commission for this district, I believe that, judging from his remarks, he hopes that the General Electric Company will accept gracefully the assignment given in the best interests of radio generally.

"I feel that this remark is misdirected. If Commissioner Caldwell had had the opportunity to be in this office for the past two weeks, he would realize that it is not the General Electric Company, but the public that is refusing to accept the commission's orders gracefully. We became interested in this matter at the time the ruling was first made public. We communicated with chambers of commerce and public officials throughout this part of New York and Vermont, New Hampshire and western Massachusetts. We were amazed at the replies we received. In a great many communities resolutions of protest had already been passed by chambers of commerce, city councils, lodges, societies and other organized bodies.

People Take Offensive.

"Newspapers in a number of places were already running protest coupons. Petitions were being circulated. Newspaper editors were receiving thousands of letters from indignant readers, asking how it was possible that the only radio station that they were able to pick up satisfactorily under all conditions could be curtailed on evening programs.

"All this, you understand, was entirely spontaneous. The General Electric Company had not even made a formal statement, and our organization at that time was making only a preliminary survey to sound out sentiment. People all over this part of the country were of their own volition

taking it upon themselves to make their protests known and to persuade others to do the same thing.

"Only the other night George R. Lunn, public service commissioner, on his own initiative, spoke over WGY. He concluded his remarks by saying that anyone who desired to send a protest could address it to him at his home. This was at 6:45 o'clock. At his breakfast table at 9 o'clock the next morning there were 60 letters waiting for him. This meant that those who sent them must have immediately sat down and written a letter, sealed, stamped it and gone to the corner post box and mailed it some time before 9 o'clock at night. By morning of the second day Commissioner Lunn had enough letters to fill a bushel basket. And he was only one of the many men who were receiving such letters in this area in their private or public capacities.

"By 9:15 this morning, in addition to a flood of letters, I have received 28 telegrams from individuals in western Massachusetts, from such places as Lenox, Pittsfield, Lee, Dalton and Becket, asking us to inform the radio commission that the present hours of station WGY should in their opinion be continued without restriction, and declaring that it is the only station that western Massachusetts can depend upon for programs at all times.

"No, it is not a question of whether or not the General Electric Company shall accept the commission's ruling with good grace," Secretary Horn concluded. "It is now a question of whether or not the million or more radio listeners in this part of the country shall have evening programs from WGY or no programs at all. New York City has a choice of a number of stations. This area is able to receive just one satisfactorily—and now it is proposed to curtail that. Small wonder it is being accepted with poor grace—by the public."

276 October 5, 1928.

Federal Radio Commission,
Ira E. Robinson, Chairman,
Washington, D. C.

GENTLEMEN:

We are sending you considerable material which has been sent to us protesting any curtailment of the broadcasting activities of WGY. The material is as follows:

Petition signed by the pupils and teachers of Sharon Springs High School, Sharon, New York, with a total of 77 signatures.

Petition signed by the citizens of Whitehall, New York, with a total of 83 signatures.

Petition signed by the citizens of Enosbury Falls, Vermont, with a total of 32 signatures.

Protests by the Troy Automobile Club of 1000 members, The Albany Radio Trades Association, Inc., The Radio Shop, Albany, New York, the Albany Distributing Corporation, and the Esco Electric Supply Company of Albany, New York.

Newspaper protest coupons from the Schenectady Union Star totaling 531 from 40 cities and villages as follows:

Altamont, N. Y.
Amsterdam, N. Y.
Alplaus, N. Y.
Ballston Spa, N. Y.
Ballston Lake, N. Y.
Burnt Hills, N. Y.
Coboes, N. Y.
Cooperstown, N. Y.
Carbondale, Pa.
Central Bridge, N. Y.
Cherry Valley, N. Y.
Charlotteville, N. Y.
Duanesburg, N. Y.
Delanson, N. Y.
Esperance, N. Y.
Glens Falls, N. Y.
Golway, N. Y.
Gloversville, N. Y.
Hegeman, N. Y.
Johnstown, N. Y.
Jefferson, N. Y.
Jonesville, N. Y.
Madisonville, N. Y.
Eiskayuna, N. Y.
Pattersonville, N. Y.
Palmer, N. Y.
Quaker Street, N. Y.
Rotterdam Junction, N. Y.
Rensselaer, N. Y.
Rexford, N. Y.
Schenectady, N. Y.
Scotia, N. Y.
Saratoga Springs, N. Y.
Seward, N. J.
Sloansville, N. Y.
Utica, N. Y.
Worcester, Mass.
Watertown, N. Y.
West Albany, N. Y.

277

September 28, 1928.

Mr. Ira E. Robinson,
Chairman Federal Radio Commission,
Washington, D. C.

DEAR MR. ROBINSON:

The Board of Directors of the Schenectady Chamber of Commerce and the City Council of Schenectady have,

by resolution, protested the action of your Commission in restricting the broadcasting of WGY. We feel that this pioneer station, which is the only one in this area in which nearly 2,000,000 people are dependent for radio instruction and entertainment, should be allowed the same privileges which it has heretofore enjoyed.

While this office has not been named as a receiving point for protests, we are in receipt of many telegrams, thousands of protest coupons forwarded to us by newspapers, individual letters, petitions, etc. We believe you will be particularly interested in petitions which we are forwarding you, which were signed the last day of the County Fair at Altamont. These petitions were placed on a table by the Schenectady County Farm Bureau Association with only a placard labeled "WGY Protest Petitions Here." In the period from 1:30 to 5:30 P. M., 581 names were signed, representing 69 separate localities. There was no one in attendance at the table where the petitions were placed and all signatures were entirely voluntary.

We are shortly forwarding you letters, other petitions and protest coupons with an analysis thereof.

Sincerely yours,

A. J. HORN,
Secretary.

278 Newspaper protest coupons from the "Hudson Daily Star," totaling 254, from the following 40 cities and villages:

Amsterdam, N. Y.
Athens, N. Y.
Chatham, N. Y.
Crangsville, N. Y.
Columbiaville, N. Y.
Clermont, N. Y.
Claverick, N. Y.
Copeke Falls, N. Y.
Catskill, N. Y.
Klinville, N. Y.
East Chatham, N. Y.
Fort Johnson, N. Y.
Fort Edward, N. Y.
Ghent, N. Y.
Kinderhook, N. Y.
Middlebury, Vt.
Millerton, N. Y.
Mellenville, N. Y.
Madalin, N. Y.
Martindale, N. Y.
No. Germantown, N. Y.
Philemont, N. Y.
Pine Plains, N. Y.
Red Hook, N. Y.
Schenectady, N. Y.
Schuylerville, N. Y.
Saratoga Springs, N. Y.
Shaftsbury, Vt.

Geletinville, N. Y.
Germantown, N. Y.
Hudson, N. Y.
Hillsdale, N. Y.
Hollowdale, N. Y.
Johnstown, N. Y.
Silvernails, N. Y.
Stottsville, N. Y.
Stuyvesant Falls, N. Y.
Utica, N. Y.
Tivoli, N. Y.
Valatie, N. Y.

Newspaper protest coupons from the "Saratogian," Saratoga Springs, New York, totaling 923, from the following 45 cities and villages:

Amsterdam, N. Y.
Albany, N. Y.
Averill Park, N. Y.
Ballston Spa, N. Y.
Broadalbin, N. Y.
Bleeker, N. Y.
Burnt Hills, N. Y.
Batchellerville, N. Y.
Bemis Height, N. Y.
Bellows Falls, Vt.
Bacon Hill, N. Y.
Ballston Lake, N. Y.
Charlton, N. Y.
Corinth, N. Y.
Clifton Park, N. Y.
Elnora, N. Y.
East Galway, N. Y.
Gloversville, N. Y.
Greenwich, N. Y.
Galway, N. Y.
Greenfield Centre, N. Y.
Gansevoort, N. Y.
Hudson Falls, N. Y.
Hadley, N. Y.
Johnstown, N. Y.
Kingston, N. Y.
Little Falls, N. Y.
Luzerne, N. Y.
Mayfield, N. Y.
Mechanicsville, N. Y.
Mt. McGragor, N. Y.
Middle Grove, N. Y.
Northville, N. Y.
New Hartford, N. Y.
Palmer, N. Y.
Porter Corners, N. Y.
Rock City Falls, N. Y.
Round Lake, N. Y.
Schuylerville, N. Y.
Stillwater, N. Y.
Saratoga Springs, N. Y.
Thomson, N. Y.
Victory Mills, N. Y.
Waterford, N. Y.
Wayville, N. Y.
Walton, N. Y.

Newspaper protest coupons from the Gloversville, New York, "Leader-Republican" totaling 95.

279 Printed individual protests, totaling 965, from 68 New York cities and villages as follows:

Afton, N. Y.
Amsable Fork, N. Y.
Albany, N. Y.
Arlington, N. Y.
Mexico, N. Y.
Maldan, N. Y.
Hartville, N. Y.
New York, N. Y.

Asbokan, N. Y.
Atwood, N. Y.
Aroma, N. Y.
Brookfield, N. Y.
Ballston Spa, N. Y.
Binghamton, N. Y.
Berlin, N. Y.
Bainbridge, N. Y.
Buffalo, N. Y.
Barton, N. Y.
Brodheads, N. Y.
Clinton, N. Y.
Cadyville, N. Y.
Davenport, N. Y.
Dennesmore, N. Y.
Dolgeville, N. Y.
Delhi, N. Y.
Earlville, N. Y.
Fort Edward, N. Y.
Fulton, N. Y.
Gabriels, N. Y.
Glen's Falls, N. Y.
Gouverneur, N. Y.
Glasco, N. Y.
Geneva, N. Y.
Greenwich, N. Y.
Harkness, N. Y.
Johnstown, N. Y.
Johnsburg, N. Y.
Kingston, N. Y.
Little Falls, N. Y.
Norwich, N. Y.
Olive Bridge, N. Y.
Oneida, N. Y.
Old Forge, N. Y.
Owego, N. Y.
Penn Tan, N. Y.
Phœnix, N. Y.
Poughkeepsie, N. Y.
Port Henry, N. Y.
Pine Plains, N. Y.
Peru, N. Y.
Riparius, N. Y.
Rochville, N. Y.
Rome, N. Y.
Syracuse, N. Y.
Saugerties, N. Y.
Sharon Springs, N. Y.
Saranac Lake, N. Y.
Schenectady, N. Y.
Towanda, N. Y.
Troy, N. Y.
Utica, N. Y.
Unadilla, N. Y.
Verona, N. Y.
Waverly, N. Y.
Watkins Glen, N. Y.
West Sharon, N. Y.
Wallkill, N. Y.
West Hurley, N. Y.
Watertown, N. Y.

Printed individual protests, totaling 413, from 59 cities outside of New York State, as follows:

West Stockbridge, Mass.
Greenfield, Mass.
Somerville, Mass.
Cambridge, Mass.
Arlington, Mass.
Turner's Falls, Mass.
New Salem, Mass.
Sheffield, Mass.
Leoainetor, Mass.
Hyderville, Vt.
Springfield, Vt.
Ryderville, Vt.
Burlington, Vt.
Avon, Con.
Waterville, Con.
Torrington, Con.
Waterbury, Con.
Norfolk, Con.

Athol, Mass.
Orange, Mass.
Housatonic, Mass.
Great Barrington, Mass.
Springfield, Mass.
West Springfield, Mass.
Winthrop, Mass.
Newton Centre, Mass.
Pittsfield, Mass.
Co. Vernon, Mass.
North Adams, Mass.
Adams, Mass.
Johnson, Vt.
Middlebury, Vt.
Vergennes, Vt.
East Middle Burg, Vt.
Goshen, Vt.
Proctor, Vt.
Waterbury, Vt.
Castleton, Vt.
Waterville, Vt.
Asculney, Vt.
Cambridge, Vt.
Caxtens River, Vt.
Saymour, Con.
Falls Village, Con.
Putman, Con.
Plymouth, N. H.
West Springfield, N. H.
Nachua, N. H.
Woodsville, N. H.
Minsdale, N. H.
Nudson, N. H.
Petersburo, N. H.
Hancock, N. H.
Stewport, N. H.
Koone, N. Y.
Winchester, N. H.
Earlborn, N. H.
Pipton, N. H.
Mill Village, N. H.
Rochester, N. H.
Concord, N. H.
Bristol, N. H.
Sayne, Pa.
Waterville, Vt.
Winsted, Con.

280 48 individual letters from 15 New York cities, as follows:

Gouverneur, N. Y.
Glen's Falls, N. Y.
Plattsburg, N. Y.
Fulton, N. Y.
Oneida, N. Y.
Oakes, N. Y.
Germanton, N. Y.
Pine Hill, N. Y.
Schenectady, N. Y.
Amsterdam, N. Y.
Mechanicsville, N. Y.
Poughkeepsie, N. Y.
Carthage, N. Y.
Albany, N. Y.
Saugerties, N. Y.
Redmondville, N. Y.

37 individual letters from 15 cities outside of New York State, as follows:

South Stratford, Vt.
Randolph, Vt.
Burlington, Vt.
Morrisville, Vt.
Pittsfield, Mass.
Stockbridge, Mass.
Lee, Mass.
Claremont, N. H.

Montpelier, Vt.
North Adams, Mass.
Housatonic, Mass.
Washington, Mass.
Pittston, Pa.
Balleforts, Pa.
Providence, R. I.

We are also sending additional protest letters. We do not feel that the situation has been satisfactorily cleared up, and the general public has demonstrated in the number and nature of the protests coming with every mail, sincere hopes that you will modify your order.

Sincerely yours,

A. J. HORN,
Secretary.

281 October 8, 1928.

Federal Radio Commission,
Ira E. Robinson, Chairman,
Washington, D. C.

GENTLEMEN:

We are sending you petitions as follows:

Little Falls, New York with 72 signatures.

Montpelier, Vermont, with 23 signatures.

Glencliff, N. H., signed by 24 inmates of the N. H. State Sanatorium.

Montpelier, Vt., with 25 signatures.

Lisbon, N. H., with 5 signatures.

Waterbury, Con., with 26 signatures.

Gloversville, N. Y., with 15 signatures.

Brasie Corners, N. Y., with 17 signatures.

Hudson Falls, N. Y., with 227 signatures.

Individual letters from Saratoga Springs, N. Y., Fultonville, N. Y., Swantey, Vermont, Gardner, Mass. Adams, Mass.

We are in receipt of 14 individually signed telegrams from North Adams, Mass. and Pittsfield, Mass., asking us to advise you that WGY is the only station upon which Northern Mass. can satisfactorily depend for regular services, and requesting that present rights of broadcasting of WGY be continued.

Signed individual protests to the number of 506, representing 69 New York State cities, as follows:

Arkport, N. Y.
Arverne, N. Y.
Amsterdam, N. Y.
Albany, N. Y.
Baldwinsville, N. Y.
Binghamton, N. Y.
Brooklyn, N. Y.
Brownville, N. Y.
Broadelbin, N. Y.
Bleiker, N. Y.
Cambridge, N. Y.
Cobleskill, N. Y.
Central Bridge, N. Y.
Endwell, N. Y.
Faltonville, N. Y.
Franklin, N. Y.
Frankfort, N. Y.
Gabriels, N. Y.
Greene, N. Y.
Gloverville, N. Y.
282 Cowden, N. Y.
Cortland, N. Y.
Cincinnatis, N. Y.
Carthage, N. Y.
Deposit, N. Y.
Elko Park, N. Y.
Earlville, N. Y.
Endicott, N. Y.
Walton, N. Y.
Waverly, N. Y.
Lake Katrine, N. Y.
Mooers, N. Y.
Moody, N. Y.
Mechanicsville, N. Y.
Dolgeville, N. Y.
Hobart, N. Y.
Hunter, N. Y.
Johnson City, N. Y.
Kingston, N. Y.
Lexington, N. Y.
Little Falls, N. Y.
Northville, N. Y.
New Hartford, N. Y.
Oneonta, N. Y.
Oxford, N. Y.
Plattsburg, N. Y.
Prattsville, N. Y.
Poland, N. Y.
Poughkeepsie, N. Y.
Rome, N. Y.
Rensselaer, N. Y.
Saugerties, N. Y.
Sherburne, N. Y.
Syracuse, N. Y.
Hayfield, N. Y.
New Berlin, N. Y.
Norwich, N. Y.
Windhams, N. Y.
Willet, N. Y.
Smithville Flats, N. Y.
Schenectady, N. Y.
Tupper Lake, N. Y.
Utica, N. Y.
Union, N. Y.
Unadilla, N. Y.
Vernon Center, N. Y.
Watertown, N. Y.
West Kill, N. Y.
Whitesboro, N. Y.

Signed individual protests to the number of 370, representing 53 cities outside of New York State, as follows:

Adams, Mass.	Burlington, Vt.
Dalton, Mass.	Morrisville, Vt.
Stockbridge, Mass.	Montpelier, Vt.
Springfield, Mass.	Vergennes, Vt.
South Lee, Mass.	Northfield, Vt.
Leo, Mass.	Wilder, Vt.
Lenox Dale, Mass.	Beebe River, N. H.
North Adams, Mass.	Cannon, N. H.
Housatonic, Mass.	Claremont, N. H.
Washington, Mass.	Concord, N. H.
Pittsfield, Mass.	East Ware, N. H.
Berlin, Vt.	Guild, N. H.
Concord, Vt.	Newbury, N. H.
East Concord, Vt.	Whitefield, N. H.
Gilwan, Vt.	Petersboro, N. H.
Fairfield, Vt.	West Lebanon, N. H.
Tunbridge, Vt.	North Newport, N. H.
White River, Vt.	Grantham, N. H.
Sheldon, Vt.	Waterbury, Con.
So. Lunonburg, Vt.	Eastport, Maine.
Windsor, Vt.	Belle Barte, Pa.
South Stratford, Vt.	Susquehanna, Pa.
Swanton, Vt.	Sayre, Pa.
Randolph, Vt.	Pittston, Pa.

We wish again to impress you with the fact that all this material has been sent to us voluntarily and is very indicative of the inconveniences which the proposed ruling will cause to radio listeners of a very wide area.

Sincerely hoping that this material and other information previously sent you will show you the inconvenience which your proposed ruling will cause and help you to a modification of your order.

Respectfully yours,

A. J. HORN,
Secretary.

283 Federal Radio Commission.

In the Matter of Applicatioon of WGY for Renewal of License.

Martin P. Rice, being duly sworn, deposes and says as follows:

1. I am Manager of Broadcasting for the General Electric Company, and have been so since the inception of its broadcasting stations.

Length of Service.

2. WGY's first broadcast license was issued by the Department of Commerce on February 4, 1922, and its first program was broadcast on February 20th of the same year. It has been on the air regularly ever since that time. There are only nine other stations having as long a service record as WGY.

Investment and Cost of Operation.

3. The original investment in Station WGY and the expenditures made for replacements in order to keep the equipment up to the very latest developments, together with the operating expense, amount to well over a million and a half dollars. No expense has been spared in providing the best apparatus, equipment and instruments so that the quality might be superior and the frequency absolutely constant. The cost for program material and talent necessities a large annual expense.

Developmental Work.

4. WGY is unquestionably the most important developmental station in the world. Through its assistance apparatus and devices have been developed which are now adopted by the leading broadcasting stations everywhere. The station was designated several years ago as a standard for maintaining frequency. Our technical force cooperated with the Department of Commerce in a long series of experiments to determine the effect of increased power, and

we demonstrated by actual tests that increased station power improves broadcast signals, extends the range of the station, and does not increase interference. Our work on short wave transmission has greatly extended the useful application of this system and available knowledge concerning it. We have recently broadcast a series of television programs so that experimenters may assist in the development of this field and so that public might become somewhat acquainted with its possibilities. The de-
284 velopmental work carried on in connection with WGY has contributed immeasurably to the progress of broadcasting.

Area Covered—Population Served.

5. The strictly technical coverage of WGY lies within an area described by a sixty mile radius and includes a population of about one million. Within 100 miles of the Station there is a population of approximately three million. Because of fading and static no other station covers this area so reliably as WGY. We have numerous letters from persons throughout this area indicating that WGY is the most dependable station. The area referred to includes portions of New York, Massachusetts, Vermont and New Hampshire, but many of our regular listeners are located at far greater distances. For example, we regularly reach certain portions of Connecticut, New Jersey, Pennsylvania, Ohio, and southern Canada.

With our short wave stations WGY's programs are carried with considerable regularity to Porto Rico, Alaska, Canal Zone, Mexico, South America, British Isles, Australia, and South Africa. Our programs are frequently published in the magazines and newspapers of these countries. The accompanying map shows the distant range of reception of WGY.

Programs.

6. Programs of WGY are designed to contribute something to everyone in every walk of life. They include the best in music, drama, entertainment, education, statesmanship, health, agriculture, religion, science, news and sports. The facilities of WGY have always been available for the

presentation of matters of public interest and importance. The State departments at Albany have frequently made use of our services. WGY broadcast the first radio play and the first radio television drama. Through connection with the National Broadcasting Company we have given the public throughout our service area programs originating in New York, which, without our station, would not be generally available in this area. We have cooperated with the State Departments of Health, Agriculture, Education, and with the police in emergencies. No reasonable request for broadcasting facilities which would contribute to the public good has been refused. A few representative programs are attached.

Hours on the Air.

7. WGY is regularly on the air from before 7:00 in the morning with certain intermissions until midnight or after. The accompanying chart shows a typical week of broadcasting, and indicates the various types of program. There are also additional periods not shown on the chart, such as special programs, news announcements, and emergency service.

285 The Effect of Reallocation.

8. The order of the Federal Radio Commission effective November 11th deprives WGY of the wavelength on which it has broadcast for the past five and one-half years, and transfers that wavelength to Zone 5 (Pacific Coast). It makes WGY a part-time station, operating on the same wavelength but subservient to the Pacific Coast. The regulations prohibit the operation of WGY after sunset on the Pacific Coast which corresponds to about 8:00 p. m. Eastern Time. All the program time after 8:00 p. m., as shown on the chart, must be cancelled. While we have many listeners to our morning and early evening program, the real radio audience, as is well known, is reached between 7:00 p. m. and midnight. The really effective usefulness of WGY is therefore destroyed by the Commission's order. The large investment and the operating expense would go on but our ability to serve the public with a station thus crippled would be tremendously reduced. No one would be

warranted in building a station of this size for such a limited period of evening broadcasting. The programs that we should have to delete are the most popular ones and the majority our listening audience would have no substitute. The order strikes at the vitals of our developmental work, because we need the reactions of the evening audience to test the value of new systems and apparatus.

Public Opinion.

9. The action of the Commission with regard to WGY is incomprehensible to the public. They cannot believe that a nominal attempt to equalize radio facilities should result in depriving three million people of the services of the station to which they are accustomed to listen. Protests by the thousands have been sent to us, to various newspapers, to the Radio Commission, and to Senators and Representatives in Congress. We have had appeals from the aged and infirm, from hospitals, from schools, and from homes. The Schenectady Chamber of Commerce has received more than 6000 protests. Local newspapers have received more than 15,000 protests. The people in New York and in adjoining States have shown more interest in this matter than in any that has come to their attention for many years. The Commission has attempted to avoid the criticism by shifting the burden to us, but the Commission has not satisfactorily explained why three million people should be deprived of their only dependable broadcast service.

MARTIN P. RICE.

286 STATE OF NEW YORK,
County of Schenectady, ss:

Subscribed and sworn to before me this 22nd day of October, 1928.

ARTHUR K. WILLEY,
Notary Public.

287 I, Harry L. Ford, Executive Secretary of the Burlington Chamber of Commerce of the City of Burlington, hereby certify, That I have received letters from over two hundred individuals from towns in the State of Vermont, during the past two months, who are dependent on WGY for radio service, and petitions have been received signed by hundreds of individuals, resolutions

from the City Council of Burlington, Vermont, the City Council of Winooski, Vermont; Chambers of Commerce in Vermont, Women's Clubs of Burlington, Police Department of Burlington and Service Clubs of Burlington; all of which desire to have WGY Radio Station of Schenectady, N. Y., maintain its full time service as it is the only dependable station which serves the thousands of radio listeners in Vermont.

(Signed) HARRY L. FORD,

G. R. WHITE,
Notary Public.

Duly subscribed to and sworn to, before me at Burlington, Vermont, on this nineteenth day of October, A. D. 1928.

288 Department of Commerce, Radio Division.
Office of Supervisor of Radio, Sub-Treasury Building, New York, N. Y.

Official business.

Mr. Martin P. Rice,
Manager of Radio Broadcasting,
General Electric Company,
Schenectady, N. Y.

Department of Commerce, Radio Division.

Office of Supervisor of Radio, U. S. Subtreasury Building, New York, N. Y.

October 27, 1928.

Mr. Martin P. Rice,
Manager of Radio Broadcasting,
General Electric Company,
Schenectady, N. Y.

SIR:

There is enclosed herewith Federal Radio Commission radio broadcasting station license No. 264, covering your WGY station, for the term beginning November 11th, 1928 and ending January 31, 1929. Kindly acknowledge receipt.

Respectfully

ARTHUR BATCHELLER,
U. S. Supervisor of Radio.

J. L.

Encl.

289 Copy.

General Electric Company, 120 Broadway, New York.

J. W. Lewis, Assistant to the President.

November 3, 1928.

Federal Radio Commission,
Washington, D. C.

DEAR SIRS:

We are handing you herewith application for modification of the WGY station license issued October 17, 1928, prepared in accordance with forms furnished by the Federal Radio Commission, together with affidavit referred to and forming a part of our answer to Question 4 of the application.

We respectfully request a hearing on this application, on either this coming Wednesday or Thursday, November 7th or 8th, 1928.

Yours very truly,
GENERAL ELECTRIC COMPANY,
By J. W. LEWIS,
Assistant Secretary.

290 Form No. 13.

Station License File No. —.

(To be filled in by the Federal Radio Commission:) Call Letters: —. Frequency: —. Power: —. Official Number: —.

United States of America, Federal Radio Commission.

Application for Modification of Station License.

(Submit in duplicate to District Supervisor of Radio in charge of district in which station is located. Swear to one copy.)

To the Federal Radio Commission:

1. Name of applicant: General Electric Company.

2. Post office address: State, New York; City, Schenectady; Street, River Road; Number, One.
3. Nature of Modification:

Terms of License dated Oct. 17, 1928.

	Modification Requested.
A. Frequency: 790 Kcs.	A. Frequency: 790 Kcs. or any frequency substantially equivalent to enable continuance of WGY's public service.
B. Power: 25,000 (50,000 exper'l Watts.	B. Power[1]: Same.
C. Hours of operation: "Limited."	C. Hours of operation: Full-time.
D. Location of transmitter: So. Schenectady.	D. Location of transmitter: So. Schenectady.
E. Location of main studio: International General Electric Building, Schenectady.	E. Location of main studio: International General Electric Building, Schenectady.
F. Call letters: WGY.	F. Call letters[2]: WGY.
G. —	G. —

[1]If construction of a new transmitter is contemplated, application for construction permit must be filed.
[2]Call letters are designated by the Secretary of Commerce. Any request for change will be submitted to him by the Commission.

291 4. How will the granting of the application serve public interest, convenience, or necessity? The reason why the granting of this application will serve public interest, convenience and necessity are set forth in the prior applications of this applicant, dated January —, 1928, October 4, 1928, and October 23, 1928, respectfully, to which reference is respectfully made, together with the affidavit of Kolin Hager, dated October 27, 1928, submitted herewith, are requested to be made a part of this application.

5. The applicant's last application for a station license is to be considered as part of this application, and the truth of the statements therein contained is hereby reaffirmed

except in so far as the contrary expressly appears in this application.

6. The applicant waives any claim to the use of any particular frequency or wave length or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a station license in accordance with this application.

Dated this 3rd day of November, 1928.

____ ____,
Applicant.

STATE OF NEW YORK,
County of New York, ss:

J. W. Lewis, being first duly sworn, upon his oath deposes and says that he is the (If applicant is not an individual, insert "agent of") agent of above-named applicant and that the statements in the foregoing application are true of his own knowledge, except as to such statements as are therein stated to be on information and belief, and as to such statements applicant believes them to be true.

____ ____.

Subscribed and sworn to before me this 3rd day of November, 1928.

____ ____,
Notary Public.

292 STATE OF NEW YORK,
County of Schenectady, ss:

Kolin Hager, being duly sworn, deposes and says as follows:

1. In the capacity of studio manager of the General Electric Radio Broadcasting Station, WGY, at Schenectady, I have been responsible for the program schedule since the beginning of the station's activities on the air (February 20, 1922).

2. From that date, February 20, 1922, to the present time, a daily log has been kept by the station, indicating every broadcast that has been transmitted by WGY.

3. The following is a true and correct transcript of entries on said log from August 1, 1928 to the present day: after 10:00 P. M.

Wednesday, August 1:

10:00-10:30 DST	Palmolive Hour, New York, (musical)	Commercial
10:30	Howard Time, N. Y. (announcement)	Commercial
10:30-11:30 DST	National Light Opera Co., N. Y. (musical)	Sustaining
11:31	Kozak Radiogram (announcement)	Commercial

Thursday, August 2:

10:00	Halsey Stuart & Co., N. Y. (musical)	Commercial
10:30	Howard Time, N. Y. (announcement)	Commercial
10:30	New York Dance music	Sustaining
11:30	Kozak Radiogram (announcement)	Commercial

Friday, August 3:

10:00	Howard Time, N. Y. (announcement)	Commercial
10:00-11:00	National Concert Bureau, N. Y. (musical)	Sustaining
11:00	Kozak Radiogram (announcement)	Commercial
11:00-12:00	Henry Busse Orchestra, Saratoga (dance)	Sustaining

Saturday, August 4:

10:00	Philharmonic orchestra, N. Y.	Sustaining
11:00-12:00	Park Central Orchestra, N. Y.	Sustaining

Sunday August 5:

10:00	Biblical Drama, New York	Sustaining
10:15-10:30	Television Transmission, Schenectady	Sustaining

Monday, August 6:

10:00	Howard Time (announcement) N. Y.	Commercial
10:30-11:30	Henry Busse orchestra, Saratoga	Sustaining
11:30	Kozak Radiogram (announcement)	Commercial
11:30-12	Dance Orchestra, Rochester	Sustaining

293 Tuesday, August 7:

10:00-10:30	Clicquot Club Eskimos, N. Y.	Commercial
10:30	Howard Time	Commercial
10:30-11:30	Palais D'Or, Dance	Sustaining
11:30	Kozak Announcement	Commercial

Wednesday, August 8.

10:00-10:30	Palmolive Hour, N. Y. (musical)	Commercial
10:30	Howard Time (Announcement)	Commercial
10:30-11:30	National Light Opera Co. (musical)	Sustaining
11:30	Kozak Announcement	Commercial

Thursday, August 9:

10:00-10:30	Halsey Stuart (investment) N. Y.	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:00	Dance Music, Buffalo, N. Y.	Sustaining
11:00-11:30	Dance Music, New York	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial

Friday, August 10:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Dance Music, Saratoga Lake, N. Y.	Sustaining

Saturday, August 11:

10:00-10:10	Philharmonic Orchestra, N. Y.	Sustaining
10:00 11:00	Dance Music, New York	Sustaining
11:00-12:00	Dance Music, Albany, N. Y.	Sustaining

Sunday, August 12:

10:00-10:15	Biblical Drama, N. Y.	Sustaining
10:15-10:30	Television Transmission	

Monday, August 13:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-10:30	Cabin Door, N. Y. (Musical)	Sustaining
10:30	Kozak Radiogram (Announcement)	Commercial
10:30-11:30	Dance Music, Saratoga Lake, N. Y.	Sustaining
11:30-12:00	Dance Music, Rochester, N. Y.	Sustaining

Tuesday, August 14:

10:00-10:30	Clicquot Club Eskimos, N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Palais D'Or Orchestra, N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement	Commercial
11:30-12:00	Television Transmission	

294 Wednesday, August 15:

10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	National Light Opera Co., N. Y. (Musical)	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial

Thursday, August 16:

10:00-10:30	Halsey Stuart & Co. Prog, N. Y (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Dance Music, N. Y.	Sustaining
11:30	Kozak Radiogram, (Announcement)	Commercial
11:30-12:20	Organ Recital, Albany, N. Y.	Sustaining

Friday, August 17:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Dance Music, Saratoga Lake, N. Y.	Sustaining

Saturday, August 18:

10:00-10:18	Philharmonic Orch., N. Y.	Sustaining
10:18-10:30	Piano Recital—Studio	Sustaining
10:30-11:00	Dance Music—New York	Sustaining
11:00-12:00	Dance Music—Albany, N. Y.	Sustaining

Sunday, August 19:

10:00-10:15	Biblical Drama, N. Y.	Sustaining
10:15-10:30	Television Transmission	

Monday, August 20:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-10:30	Cabin Door, N. Y. (Musical)	Sustaining
10:30	Kozak Radiogram (Announcement)	Commercial
10:30-11:30	Dance Music—Saratoga Lake, N. Y.	Sustaining
11:30-12:00	Dance Music—New York	Sustaining

Tuesday, August 21:

10:00-10:30	Clicquot Club Eskimos, N. Y. (Music)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Palais D'Orch, N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:00	Television Transmission	

295 Wednesday, August 22:

10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	National Light Opera Co., N. Y. (Musical)	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial

Thursday, August 23:

10:00-10:30	Halsey Stuart & Co. Prog. (Musical) (New York)	Commercial
10:30-11:30	Dance Music—New York	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:26	Organ Recital—Albany, N. Y.	Sustaining

Friday, August 24:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Dance Music—Saratoga Lake, N. Y.	Sustaining

Saturday, August 25:

10:00-10:22	Philharmonic Orch., N. Y.	Sustaining
10:22-11:00	Dance Music, N. Y.	Sustaining
11:00-12:00	Dance Music, N. Y.	Sustaining

Sunday, August 26:

10:00-10:15	Biblical Drama, N. Y.	Sustaining
10:15-10:30	Television Transmission	

Monday, August 27:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-10:30	Cabin Door, N. Y. (Musical)	Sustaining
10:30	Kozak Radiogram (Announcement)	Commercial
10:30-11:30	Dance Music—Saratoga Lake, N. Y.	Sustaining
11:30-11:35	Dance Music—Rochester, N. Y.	Sustaining
11:35-12:00	Dance Music—New York	Sustaining

Tuesday, August 28:

10:00-10:30	Clicquot Club Eskimos, N. Y. (Music)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Palais D'Or Orch., N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-11:33	Missing Person Announcement	Sustaining
11:33-12:00	Television Transmission	

296 Wednesday, August 29:

10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	National Light Opera Co., N. Y. (Musical	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial

Thursday, August 30:

10:00-10:30	Halsey Stuart & Co. Prog. (N. Y.) (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Dance Music, N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:00	Organ Recital—Albany, N. Y.	Sustaining

Friday, August 31:

10:00	Howard Time, N. Y. (Announcement)	Commercial
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Music)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Dance Music—Saratoga Lake, N. Y.	Sustaining

Record of Broadcasts from WGY After 10 *P. M.—September*, 1928.

10:00 P. M.—D. S. T.—Peter Van Steeden's Orchestra, N. Y. Sustaining

11:00-12:00	Dance Program, DeWitt Clinton Hotel, Albany, N. Y. (Musical)	Sustaining

Sunday, September 2:

10:00-10:15	Biblical Drama, New York	Sustaining
10:15-10:30	Television Transmission	

Monday, September 3:

10:00	Howard Time, New York (Announcement)	Commercial
10:00	Cabin Door, New York (Music and Dialogue)	Sustaining
10:30	"El Tango Romantico," New York (Music)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Park Central Skylarks (Musical), N. Y.	Sustaining

Tuesday, September 4:

10:00	Clicquot Club Eskimos, N. Y. (Musical)	Commercial
10:30	Howard Time, New York (Announcement)	Commercial
10:30-11:30	Palais D'Or Orchestra, New York	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:00	Television Transmission	

Wednesday, September 5:

10:00-10:30	Palmolive Hour, New York (Musical)	Commercial
10:30	Howard Time, New York (Announcement)	Commercial
10:30	Kozak Radiogram (Announcement)	Commercial
10:30-11:30	National Light Opera Co. (Musical), N. Y.	Sustaining

Thursday, September 6:

10:00	Halsey Stuart and Co. Program, New York (Musical)	Commercial
10:30	Howard Time, New York (Announcement)	Commercial
10:30	Rice String Quartet (Musical)	Sustaining
11:00	New York Dance Music	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:30	Organ Recital—Walter, Albany, N. Y.	Sustaining

Friday, September 7:

10:00	Howard Time, New York (Announcement)	Commercial
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial

298 Saturday, September 8:

10:00	Hal Kemp's Hotel Manger Orch., N. Y.	Sustaining
11:00-12:00	Dance Music—Ten Eyck Hotel, Albany, N. Y.	Sustaining

Sunday, September 9:

10:00-10:15	Biblical Drama, New York	Sustaining
10:15-10:30	Television Transmission	

Monday, September 10:

10:00	Kozak Radiogram (Announcement)	Commercial
10:00-12:00	Attorney General Ottinger Program, New York	Commercial

Tuesday, September 11:

10:00	Clicquot Club Eskimos, N. Y. (Music)	Commercial
10:30	Howard Time (Announcement) N. Y.	Commercial
10:30-11:30	Palais D'Or Orchestra, N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:30	Special television transmission (Play)	

Wednesday, September 12:

10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	National Light Opera Co. N. Y. (Musical)	Sustaining
10:30	Kozak Radiogram (Announcement)	Commercial

Thursday, September 13:

10:00	Halsey Stuart and Co. Pro. (N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30	Musical Program, Studio	Sustaining
11:00	Dance Music, N. Y.	Sustaining
11:30	Kozak Radiogram (Announcement)	Commercial
11:30-12:00	Park Central Skylarks (Musical) N. Y.	Sustaining

Friday, September 14:

10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
11:00	Kozak Radiogram, (Announcement)	Commercial

Saturday, September 15:

10:00-11:00	Lucky Strike Program (Musical) N. Y.	Commercial
11:00-12:00	Dance Music broadcast from Buffalo, New York	Sustaining

299 Sunday. September 16:

10:00-10:15	Biblical Drama, N. Y.	Sustaining
10:15-10:30	Television Transmission	

Monday, September 17:

10:00-10:15	General Motors Family Party, N. Y. (Musical)	Commercial
10:15	Howard Time, N. Y. (Announcement)	Commercial
10:15-10:30	Cabin Door (Musical) N. Y.	Sustaining
10:30-11:00	Musical Program-Studio	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Sax Smith and His Cavaliers, (Music) Rochester, N. Y.	Sustaining

Tuesday, September 18:		
10:00-11:00	Radio Industries Banquet, N. Y. (Music and addresses)	Sustaining
11:00	Kozak Radiogram (Announcement)	Commercial
11:00-12:00	Speech by Governor Smith from Omaha, Nebraska	Commercial
Wednesday, September 19:		
10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30	Democratic National Campaign (N. Y.) (Speeches)	Commercial
11:00	Howard Time, N. Y. (Announcement)	Commercial
11:00	Kozak Radiogram (Announcement)	Commercial
Thursday, September 20:		
10:00	Halsey Stuart and Co. Program (N. Y.) (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement	Commercial
10:30	Speech by Governor Smith from Oklahoma City, Okla.	Commercial
11:40-12:30	Organ Recital—Albany, N. Y. (Music)	Sustaining
Friday, September 21:		
10:00-11:00	National Broadcasting and Concert Bureau Hour, N. Y. (Musical)	Sustaining
Saturday, September 22:		
10:00-11:00	Lucky Strike Program N. Y. (Music)	Commercial
11:00-12:00	Dance Music (11:00-11:25 Schdy.) (11:25-12:00 N. Y.)	Sustaining
Sunday, September 23:		
10:00-10:15	Musical Program, N. Y. Studio	Sustaining
10:15-10:30	Television Transmission	
300 Monday, September 24:		
10:00-10:30	Program sponsored by California Fruit Ass'n. N-C New York	
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:00-12:00	Opera "Rigoletto" New York	Sustaining
Tuesday, September 25:		
10:00	Clicquot Club Eskimos N. Y. (Musical)	Commercial
10:30	Howard Time, N. Y. (Announcement)	Commercial
10:30-11:30	Palais D'Or Orchestra, N. Y.	Sustaining
11:30-12:00	Television Transmission	
Wednesday, September 26:		
10:00-10:30	Palmolive Hour, N. Y. (Musical)	Commercial
10:30-11:30	Democratic National Campaign (N. Y.) (Music and Speeches)	Commercial
11:00	Howard Time, N. Y. (Announcement)	Commercial
Thursday, September 27:		
10:00-10:30	Halsey Stuart and Co. Prog. (N. Y.) (Musical)	Commercial
10:30-11:00	Musical Program—Studio	Sustaining
11:00-11:30	Musical Program from Rochester, N. Y.	Sustaining
11:30-11:45	Republican Campaign (Upstate chain)	Commercial
11:45-12:30	Organ Recital—Albany, N. Y.	Sustaining

Friday, September 28:

10:00-10:05	Red Cross Talk—N. Y.	Sustaining
10:05-11:00	National Broadcasting and Concert Bureau Hour, New York (Music)	Sustaining

Saturday, September 29:

10:00-11:00	Lucky Strike Program, N. Y. (Musical)	Commercial
11:00	Howard Time, N. Y. (Announcement)	Commercial
11:00-12:00	Dance Music, Albany, N. Y.	Sustaining

Sunday, September 30:

10:00-10:15	Musical Program, N. Y. Studio	Sustaining
10:15-10:30	Television Transmission	

301 Monday, October 1:

10:00-11:00	National Democratic Campaign, Rochester	Commercial
11:00	Howard Time (announcement)	Commercial
11:00-12:00	Dance orchestra, Rochester	Sustaining

Tuesday, October 2:

10:00	Clicquot Club Eskimos (musical) N. Y.	Commercial
10:30	Howard Time (announcement)	Commercial
10:30-11:30	Dance music, New York	Sustaining
11:30-12:00	Television	Sustaining

Wednesday, October 3:

10:00	Palmolive N. Y. (musical)	Commercial
10:30	Howard Time (announcement)	"
10:30-11:00	National Democratic Campaign speeches N. Y.	"

Thursday, October 4:

10:00-10:30	Halsey Stuart N. Y. (musical)	"
10:30-11:00	WGY Orchestra, Schenectady	Sustaining
11:00-11:30	Dance music N. Y.	"
11:30-11:45	National Republican Campaign speeches Rochester	Commercial
11:46-12:25	Organ recital Albany	Sustaining

Friday, October 5:

10:00-11:00	National Concert Bureau, New York	Sustaining

Saturday, October 6:

10:00-11:00	Lucky Strike Dance Orchestra, New York	Commercial
11:00	Howard Time (announcement)	"
11:00-12:00	Phil Romanio's orchestra, Albany	Sustaining

Sunday, October 7:

10:00-10:15	Atwater Kent (musical) New York	Commercial
10:15-10:30	Television Schenectady	Sustaining

Monday, October 8:

10:00	General Motors New York (musical)	Commercial
10:30-11:00	Mixed Quartet, Schenectady	Sustaining
11:00-12:00	Rochester dance program scheduled, wire failed	"

Tuesday, October 9:

10:00	Clicquot Club Eskimos (musical)	Commercial
10:30	Howard Time (announcement)	"
10:31-11:00	New York musical	Sustaining
11:00-11:31	Hotel Manger Orchestra New York	"
11:31-12:00	Television Schenectady	"

302 Wednesday, October 10:

10:00-10:30	Palmolive (Musical) New York	Commercial
10:30-11:00	Nat'l. Democratic Campaign New York	"
11:01	Howard Time (announcement)	"

Thursday, October 11:

10:00	Halsey Stuart (musical)	"
10:30	Howard Time (announcement)	"
10:30-11:30	Carborundum program (musical) Buffalo	"
11:30-11:45	Republican Nat'l. Campaign speech Schenectady	"
11:45-12:00	Organ program Albany	Sustaining

Friday, October 12:

10:00-11:00	National Concert Bureau New York	"

Saturday, October 13:

10:00-11:00	Lucky Strike Musical program, N. Y.	Commercial
11:00	Howard Time (announcement) N. Y.	"
11:00-12:00	Dance program, Buffalo	Sustaining

Sunday, October 14:

10:00-10:15	Atwater Kent musical New York	Commercial
10:15-10:30	Television Schenectady	Sustaining

Monday, October 15:

10:00-10:30	General Motors program musical N. Y.	Commercial
10:30	Howard Time (announcement) N. Y.	"
10:31-11:00	Mixed Quartet Schenectady	Sustaining
11:00-12:00	Dance music Rochester	"

Tuesday, October 16:

10:00-10:30	Clicquot Club musical N. Y.	Commercial
10:31	Howard Time (announcement) N. Y.	"
10:31-11:00	Zeppelin Reception program N. Y.	Sustaining
11:00-11:30	Dance program Albany	"
11:30-12:00	Television Schenectady	"

Wednesday, October 17:

10:00	Palmolive musical, N. Y.	Commercial
10:30-11:00	Nat'l. Democratic Campaign Chicago	"
11:00	Howard Time (announcement) N. Y.	"

Thursday, October 18:

10:00	Halsey Stuart musical N. Y.	"
10:30	Howard Time (announcement) N. Y.	"
10:30-11:30	Carborundum program Buffalo musical	"
11:30-11:45	Nat'l Republican Committee Buffalo	"
11:45-12:30	Organ program Albany	Sustaining

303 Friday, October 19:

10:00	Bourjois Musical program N. Y.	Commercial
10:30	Howard Time (announcement) N. Y.	"
10:31-11:00	National Concert program N. Y. musical	Sustaining

Saturday, October 20:

10:00-11:00	Lucky Strike musical program, N. Y.	Commercial
11:00	Howard Time (announcement) N. Y.	"
11:00-12:00	Van Curler dance program Schenectady	Sustaining
12:00-12:30	Television, special, for Canada	"

Sunday, October 21:		
10:00-10:15	Atwater Kent N. Y. musical	Commercial
10:15	Howard Time (announcement) N. Y.	"
10:15-10:30	Television Schenectady	Sustaining
Monday, October 22:		
10:00	General Motors musical N. Y.	Commercial
10:30	Howard Time (announcement) N. Y.	"
10:30	Mixed Quartet Schenectady	Sustaining
11:00-12:00	Dance program Rochester	"
Tuesday, October 23:		
10:00	Cliquot Club musical program N. Y.	Commercial
10:30	Howard Time (announcement) N. Y.	"
10:30-11:30	National Republican Campaign Missouri	"
11:30-12:00	Television Schenectady	Sustaining
Wednesday, October 24:		
10:00-10:30	Palmolive musical program N. Y.	Commercial
10:30-11:00	National Democratic Campaign N. Y.	"
11:00	Howard Correct Time (announcement) N. Y.	"
Thursday, October 25:		
10:00	Halsey Stuart musical N. Y.	"
10:30	Howard Time (announcement) N. Y.	"
10:30-11:30	Carborundum musical Buffalo	"
11:30-11:45	National Republican Campaign Rochester	"
11:45-12:30	Organ program Albany	Sustaining
Friday, October 26:		
10:00	Democratic National Campaign, New Jersey	Commercial
10:30	Howard Time (announcement) N. Y.	"
10:30-11:30	National Concert Bureau N. Y.	Sustaining
11:30-12:00	Hawaiian Trio Schenectady	"

KOLIN HAGER.

Subscribed and sworn to before me this 27th day of October, 1928.

T. W. BAUMGRAS,
Notary Public.

304 Federal Radio Commission, Washington, D. C.

Commissioners: Ira E. Robinson, Chairman; Eugene O. Sykes, Vice Chairman; Orestes H. Caldwell, Sam Pickard, Harold A. Lafount. Carl H. Butman, Secretary.

November 5, 1928.

General Electric Company,
1 River Road,
Schenectady, New York.

DEAR SIRS:

The Federal Radio Commission hereby acknowledges receipt of your application for Modification of Station License dated November 3, 1928.

File Number 1-M-B-128 has been assigned thereto.

All future correspondence referring to this application should bear the above file number.

This application will be brought to the attention of the Commission and you will be duly advised when its decision is made.

Very truly yours,

CARL H. BUTMAN.
CARL H. BUTMAN,
Secretary.

Federal Radio Commission's Appendix.

(Included in Record by Appellee and Objected to by Appellant.)

305 The Davis Amendment.

The problems of the commission in endeavoring to achieve better radio reception and at the same time to work toward the "fair, efficient, and equitable radio service" as between the different States and communities, as required by section 9 of the radio act of 1927 before the amendment, were somewhat changed in character by the amendment which became law on March 28, 1928. (Appendix E (1).) It has become popularly known as the Davis amendment. It has as its declared purpose:

That the people of all the zones * * * are entitled to equality of radio-broadcasting service, both of transmission and reception.

It then proceeds to prescribe the methods for attaining the desired equality. These methods are as follows:

1. The licensing authority shall, as nearly as possible, make and maintain an equal allocation broadcasting licenses, of bands of frequency or wave lengths, of periods of time for operation, and of station power to each of said zones when and in so far as there are applications therefor; and

2. Shall make a fair and equitable allocation of licenses, wave lengths, time for operation, and station power to each of the States, the District of Columbia, the Territories, and possessions of the United States within each zone, according to population.

Congress directed that the equality should be carried into effect whenever necessary or proper—

By granting or refusing licenses or renewals of licenses, by changing periods of time for operation, and by increasing or decreasing station power when applications are made for licenses or renewals of licenses.

The amendment contains a proviso permitting a zone which is over its quota under any of the four headings of prescribed equality to borrow from a zone which is under its quota, the borrowing to be shown in temporary licenses.

306 Radiobroadcasting service depends in the first instance upon geographical considerations, principally distance and area, and not upon population. Approximately correct figures with regard to population and area of each zone, and of the radius of the largest circle that can be drawn in each zone, and as follows:

	Population.	Area.	Radius of largest circle.
		Square miles.	*Miles.*
First zone	27,385,288	129,110	250
Second zone	28,123,000	247,517	131
Third zone	28,088,618	761,895	427
Fourth zone	26,786,192	658,148	380
Fifth Zone	11,266,244	1,774,437	725

A given number of broadcasting stations of given power will give much better service to a zone which is small in area than to a zone which is large in area. The commission in working out the proper application of the amendment, desired to take advantage so far as possible of the difference in time between the Atlantic and Pacific coasts, of the daytime operation of stations, of the greater use of Canadian-shared channels which is possible in the South, and other considerations which could not easily be accommodated to mathematical equality. The "borrowing" clause proved to be of practically no assistance in solving the problem, because there were very few cases where a facility due any particular area could be spared from the service of that area.

There was in the commission a difference of opinion as to the intention of Congress with regard to the method of putting the amendment into force. A majority of the commission have construed the amendment as requiring an immediate reallocation of broadcasting facilities so as to attain the prescribed equality. Commissioner Robinson has construed the amendment as indicating a policy to be followed in the future by the commission in gradual steps without calling for any general rearrangement of stations immediately, and that the equalization was to be accomplished "when and in so far as there are applications." There has also been a difference of opinion as to whether the amendment, properly construed, requires an eqality in number of licensed broadcasting stations by zone without regard to division of time or whether two or more stations dividing time in one zone may be balanced as against one station occupying full time in another zone.

On June 30, 1928, the broadcasting facilities of the United States were distributed among the five zones approximately as follows:

	Total number of stations.	Total frequencies in use.	Total power.
First zone	128	64	228,135
Second zone	112	53	109,990
Third zone	116	54	59,535
Fourth zone	206	73	162,805
Fifth zone	134	74	67,145

These figures are of only approximate accuracy
307 but will serve the purpose. They include 13 portable stations which were forced to cease operation beginning with July 1, 1928. They also include under the heading of "Total power" a certain amount due to increases granted to new stations under construction permits or to old stations, particularly in the third zone. Appendix E (2) shows an allocation of radio facilities to the various States and Territories as of June 30, 1928.

(a) *Various plans presented to the commission for compliance with the Davis amendment.*—The problem of applying the Davis amendment to the approximately 700 existing broadcasting stations was submitted by the commission to

a group of experts consisting largely of well-known radio engineers. This group submitted a memorandum to the commission on March 30, 1928, setting forth a plan classifying the 90 broadcasting channels into three groups—"exclusive," "regional," and "local"—apportioning these channels equally to the five zones and each zone to the State so far as possible, in accordance with the population. The memorandum was accompanied by two sample allocations which differed only in the number of channel assigned to exclusive and regional service, respectively. In one of these it was proposed to allocate 50 channels for rural as well as urban service, each channel to be exclusive, and 36 for regional service with an average of 2½ stations on each channel. In the second the exclusive and regional channels were 30 and 56, respectively. In both cases 4 channels were to be devoted to local stations. The average power contemplated on the local channels was to be 100 watts, on the regional 500 watts, and on the exclusive 20 kilowatts. The memorandum, together with the sample allocations, is set forth in Appendix E (3).

The commission held a conference with a number of radio engineers on April 6, 1928. Dr. J. H. Dellinger, of the Bureau of Standards, acted as chairman of the conference. The broadcasting committee of the Institute of Radio Enginers submitted a report, which is contained in Appendix E (4), likewise favoring the plan of allocation just mentioned and covering other matters of importance for the prevention of interference. The engineers present adopted a resolution favoring the plan calling for 50 exclusive channels and 36 regional channels. This resolution is set forth in Appendix E (5). Doctor Dellinger prepared a summary of the discussion and conclusions of the conference, which is set forth in Appendix E (6).

On April 23, 1928, the commission held a further hearing to permit the radio industry to express its views on the proper method of applying the Davis amendment. The meeting was held largely at the request of the National Association of Broadcasters, the Federated Radio Trades Association, and the Radio Manufacturers' Association. It was attended, however, by a number of persons representing practically all interests concerned directly or indirectly in broadcasting and including a number of the radio engi-

neers who had participated in the previous discussion. A partial list of those present is contained in Appendix. Congressman Davis, the author of the amendment, was unable to be present, but submitted to the commission a letter outlining his views as to its proper application, which letter is set forth in Appendix E (7). A series of recommen-
308 dations was made to the commission in a memorandum submitted by the National Association of Broadcasters, the Federated Radio Trades Association, and the Radio Manufacturers' Association, which memorandum is set forth in Appendix E (8). The memorandum, while expressing sympathy with the ideals sought to be attained by the engineers' recommendations, suggested a method of procedure which was calculated to bring about as small a change in existing allocations as was possible, consistent with the requirements of the law, at the same time leaving the way open to a gradual improvement of conditions. Suggestions were also made in a memorandum presented by Louis B. F. Raycroft, vice president of the National Electric Manufacturers' Association (Appendix E (9)), and Louis G. Caldwell, representing several individual broadcasting stations (later general counsel of the commission), the latter suggestions being incorporated in a printed pamphlet which is too long for reprinting in the report. Doctor Dellinger prepared a memorandum discussing the proposals made at the hearing, which is set forth in Appendix E (10). Experts employed by the commission made a tabulation showing the percentages of radio facilities assignable to each State in proportion to population, based upon estimates in the 1928 population prepared by the United States Census Bureau, which gives the total population of the United States as 121,649,342. This is contained in Appendix E (11).

309 APPENDIX E (3).

Engineers' Broadcast Memorandum Submitted to the Commission on March 30, 1928.

Experts employed by the commission submitted the following memorandum on March 30, 1928, which was used as a basis for discussion at the hearing of radio engineers

April 6, 1928, and at the hearing of the broadcasters and manufacturers on April 23, 1928, to consider the most practical way to put into effect the equitable distribution clause of the radio act:

Allocation of Broadcasting Channels to Zones and States.

Attached are two sample allocations giving assignments of broadcasting channels to zones an States. These allocations are intended to comply with the provisions of the radio act of 1927 as recently amended. Both allocations are based upon a classification of broadcasting channels into three groups—national, regional, and local. The channels of each of these groups are apportioned equally to the five zones and in each zone are apportioned to the States, so far as possible in accordance with their population.

The power permitted for use by each assignment would on the average be as follows, subject to such modification as may be required or permitted by the terms of the radio act: National channels, 20,000 watts; regional channels, 500 watts; local channels, 100 watts.

Classification of Channels.

The two allocations marked "Example A" and "Example B" differ primarily in the proportions by which the broadcasting spectrum is divided into the national and regional groups. The number of channels in each example assigned to each class is given in the following table:

	Example A	Example B
Cleared channels, one full-time assignment on each channel without duplication in any other part of the country	50	30
Regional channels, each zone to have assignments on half of these channels	36	56
Local channels, each zone to have five assignments on each of these channels	4	4
Total number of channels (omitting 6 used by Canada)	90	90

310 Number of Full-time Assignments.

The number of stations or groups of stations which, under each of these plans may be given full-time assignments is as follows:

Classification and Number of Station Assignments.

	Example A.		Example B.	
	Per zone.	Total number.	Per zone.	Total number.
Class C, for assignment to clear channels	10	50	6	30
Class B, for assignment to regional channels	18	90	28	140
Class A, for assignment to local channels	20	100	20	100
Total number of full-time assignments for night-time simultaneous operation	48	240	54	270

Apportionment of Channels to Zones and to States.

The channels of each class are apportioned to the zones and States as follows:

Each zone is given an equal number of channels of each class. The number of assignments in each zone is 20 per cent of the total number of assignments in the country.

In Example A, there are then allotted to each State the number of assignments of each class which corresponds to the proportion of its population to the population of the zone. The allotments of assignments to the several States are summarized in the following table. Certain States having fractional assignments are grouped, the group having an integral full-time assignment.

Example A.

Zone I:

	Class C.	Class B.	Class A.
Maine	½	½	1
New Hampshire		½	1
Vermont		½	1
Massachusetts	1½	3	3
Connecticut	1	1	1
Rhode Island		½	1
New York	4	7½	7
New Jersey	1½	2½	2
Delaware	1½	½	1
Maryland		1	1
District of Columbia		½	1
Porto Rico	...	...	...
Virgin Islands	...	...	...
Total	10	18	20

Zone II:

Pennsylvania	3½	6½	7
Virginia	1	1½	2
Ohio	2½	4	5
Michigan	1½	3	3
Kentucky	1	2	2
West Virginia	½	1	1
Total	10	18	20

Zone III:

North Carolina	1	2	2
South Carolina	½	1	1
Georgia	1	2	2
Florida	½	½	1
Alabama	1	1½	2
Mississippi	½	1½	2
Tennessee	1	1½	2

	Class C.	Class B.	Class A.
Arkansas	½	1½	1
Louisiana	1	1½	1
Texas	2	3½	4
Oklahoma	1	1½	2
Total	10	18	20
Zone IV:			
Indiana	1	2	2
Illinois	2½	4½	5
Wisconsin	1	2	2
North Dakota	½	½	1
South Dakota	½	½	1
Iowa	1	2	2
Nebraska	½	1	1
Kansas	½	1½	1
Missouri	1½	2½	3
Minnesota	1	1½	2
Total	10	18	20
Zone V:			
Montana	½	1	1
Idaho	½	1	1
Wyoming	½	½	1
Colorado	1	2	2
New Mexico	½	½	1
Arizona	½	½	2
Utah	½	1	1
Nevada	0	½	1
Washington	1½	2½	3
Oregon	1	1½	1
California	4	7	7
Hawaii	...	...	...
Alaska	...	...	...
Total	10	18	20

311 In Example B, the cleared channels, allocated to a zone as in Example A, are assigned to States accord-

ing to population, fractional assignments being disregarded. This results in the assignment of six of each zone's allotment of class C channels. The remaining 4 of the 10 class C channels originally allotted for use in each zone may then be added to the regional group, until such time as there is a reallocation based on a new census. This gives a total of 56 class B channels, of which 28 may be used in each zone.

One of the class B channels allotted for use in a given zone is assigned to each State. The remaining regional assignments are apportioned to the States of that zone in proportion to their population. The 20 class A assignments are apportioned to the States as in Example A.

The allotments of assignments to States appearing in Example B are summarized in the following table:

Example B.

	Class C.	Class B.	Class A.	Total.
Zone I:				
Maine	..	1	1	2
New Hampshire	..	1	1	2
Vermont	..	1	1	2
Massachusetts	1	4	3	8
Connecticut	..	2	1	3
Rhode Island	..	1	1	2
New York	4	10	7	21
New Jersey	1	4	2	7
Delaware	..	1	1	2
Maryland	..	2	1	3
District of Columbia	..	1	1	2
Porto Rico	..	..	..	..
Virgin Islands	..	..	..	..
Total	6	28	20	54
Zone II:				
Pennsylvania	3	9	7	19
Virginia	0	3	2	5
Ohio	2	6	5	13
Michigan	1	5	3	9

	Class C.	Class B.	Class A.	Total.
Kentucky	0	3	2	5
West Virginia	0	2	1	3
Total	6	28	20	54
Zone III:				
North Carolina	1	3	2	6
South Carolina	0	2	1	3
Georgia	1	3	2	6
Florida	0	2	1	3
Alabama	1	3	2	6
Mississippi	0	2	2	4
Tennessee	1	2	2	5
Arkansas	0	2	1	3
Louisiana	0	2	1	3
Texas	2	5	4	11
Oklahoma	0	2	2	4
Total	6	28	20	54
Zone IV:				
Indiana	1	3	2	6
Illinois	2	7	5	14
Wisconsin	1	3	2	6
North Dakota	0	1	1	2
South Dakota	0	1	1	2
Iowa	0	3	2	5
Nebraska	0	2	1	3
Kansas	0	2	1	3
Missouri	1	3	3	7
Minnesota	1	3	2	6
Total	6	28	20	54
Zone V:				
Montana	0	2	1	3
Idaho	0	2	1	3
Wyoming	0	1	1	2

Colorado	1	3	2	6
New Mexico	0	1	1	2
Arizona	0	1	1	2
Utah	0	2	1	3
Nevada	0	1	1	2
Washington	1	4	3	8
Oregon	0	2	1	3
California	4	9	7	20
Hawaii & Alaska	..	..	..	..
Total	6	28	20	54

Method of Allocation.

Class A.—In both examples the following four frequencies are designated as class A channels—1,350, 1,360, 1,410, and 1,500 kilocycles. By providing a separation of 50 kilocycles, or more, between three of the channels of this class, it is possible to make class A assignment to the required number of stations in each zone, even though several groups of three may be located in close proximity to one another geographically. The 1,500 kilocycle channel may be used also by portable broadcasting stations. This frequency is the border frequency between the broadcasting band and the adjacent band of higher frequency allocated by the International Radio Conference to mobile radio service.

Class B.—In both examples, the lower six channels, namely 550 to 600 kilocycles, inclusive, are designated as class B channels. This range includes two channels (580 and 600 kilocycles) which are shared with Canada. In addition, the remaining nine channels which are also
312 shared with Canada are designated as class B channels. These are the following: 630, 780, 880, 890, 930, 1,010, 1,120, 1,200, and 1,210 kilocycles.

In Example A, the remaining 21 class B channels are those from 1,260 to 1,490 kilocycles, inclusive, omitting the three channels in this range (1,350, 1,360, and 1,410 kilocycles) previously designated for class A.

Class C.—The frequency band from 610 to 1,250 kilocycles, inclusive, is designated as class C with the omission of the channels shared with Canada listed above and the following channels which are used by Canada exclusively: 690, 730, 840, 910, 960, and 1,030 kilocycles.

The class C channels are assigned to the five zones in the order of rotation—I, IV, II, V, III. This order of rotation makes it possible to secure an adequate geographical separation between stations assigned to channels separated by 10, 20, 30, or 40 kilocycles. This results also in the assignment of channels in a given zone having a separation of 50 kilocycles as a minimum; this separation being increased in a number of instances on account of the existence of Canadian channels. If the channels from 610 to 1,250 kilocycles are apportioned into the five groups in this way, it develops that one of these groups contains a large number of channels which are next to channels used by Canada. This group of channels should, therefore, be used by the United States in Zone III. This therefore determines in accordance with the order of rotation given above which group of channels should be used in each of the other zones. The following groups of channels are therefore assigned to class C stations in the several zones:

Zone I.	Zone II.	Zone III.	Zone IV.	Zone V.
Kilocycles.	*Kilocycles.*	*Kilocycles.*	*Kilocycles.*	*Kilocycles.*
640	660	620	650	610
700	720	680	710	670
760	790	750	770	740
820	850	810	830	800
900	940	870	920	860
980	1,000	970	990	950
1,050	1,070	1,040	1,060	1,020
1,100	1,130	1,090	1,110	1,080
1,160	1,180	1,150	1,170	1,140
1,230	1,250	1,220	1,240	1,190

In the assignment of class B channels to zones, attention is given to the fact that nine of the Canadian shared channels used in this way are adjacent to class C channels used by high-power stations. These Canadian shared channels should, therefore, be used in zones other than those in which the high-power stations on the adjoining channels are located. For example, the 630 kilocycle channel may be used in Zones II, IV, or V, but should not be used in Zones I and III. If proper assignments of the Canadian shared channels are made to Zones I and II, there results a definite as-

signment of the remaining class B channels to those two zones.

In order to secure the necessary distance separation between stations using a given class B channel, and in order to secure the necessary frequency separation between class B stations in a given zone, the class B channels are assigned alternately for use in Zones I and II. A class B channel assigned to Zone I may be assigned also to Zone V and to either Zone III or Zone IV. Similarly, a class B channel assigned to Zone II may be assigned to either Zone III or Zone IV. It might also be assigned to Zone V. The use of such a channel simultaneously in Zones III, IV, and V, while perhaps sometimes permissible from an interference standpoint, would result in twice as many assignments to each of these zones as to Zones I and II. A class B channel used in Zone I may, therefore, be used in either Zone III or Zone IV, but not both; and a class B channel used in Zone II may be used in either Zone III or Zone IV, but not both. In making assignments, one-half of the channels have been assigned to Zone I, and one-half to Zone II. Each channel assigned to Zone I is also assigned to a State in the eastern part of either Zone III or Zone IV and each channel assigned to Zone II is also assigned to a State in the western part of Zone III or Zone IV. This secures the maximum distance separation between assignments in these zones while maintaining an equality in the total number. Assignments to States in Zone V are made on the same channels assigned to Zone I.

313 Power.

By providing that each class of assignment carries with it a certain specification as to power, the proper distribution of channels to States carries with it a definite distribution of power to States. It is recognized that certain stations may not use the full power authorized for channels to which they are assigned. This may make possible the temporary use of additional power on other channels where permissible from a radio interference standpoint. Since each class C channel is used exclusively by a single full-time assignment, there is no technical reason why this should be fixed at any limit below that which will be determined by economic considerations. In order, however,

to reach a definite value for the total power authorized for use on these channels, the power which may be used for each class C assignment may be fixed tentatively at 20,000 watts. This may be increased at a later time thus increasing the general power level of all class C assignments in all zones.

The power designated for each class B assignment is 500 watts. This will have to be reduced to 250 watts in the case of class B stations assigned to Canadian shared channels when these stations are located within 250 miles of the Canadian border. The power of certain class B stations may be increased to 1,000 watts, where these stations are located at points far removed geographically from other stations on the same channel.

The following table gives the power associated with each class of assignment:

Class.	Power per assignment.	Power per channel.	Power per zone.	Total power.
C	20,000	20,000	200,000	1,000,000
B	500	1,000	9,000	45,000
A	100	250	2,000	10,000

It may be desirable to authorize increase in power for daytime and summer time operation.

Number of Station Assignments.

The number of station assignments depends entirely on the amount of time division which is required. Since the number of full-time channel assignments to zones has been made equal, the number of station assignments in the several zones will be equal, if equal time divisions are required. If licenses granted to stations which share time are counted as fractional assignments, the sum of these fractional assignments would equal the number of full-time assignments.

Assignments to such stations as operate only during the daytime are not included in these allocations.

Requirements to be Met by Stations of Each Class.

In order to determine whether a station or an applicant is eligible for consideration for a given class of assignment, it seems essential that certain requirements be adopted with

which the stations of the several classes must comply. These requirements should be most rigid in the case of the class B and class C stations and should, even in the case of class A stations, be such as to include only those stations whose operation is in the public interest.

These requirements may be primarily technical in their nature and thus subject to measurement by the field staff of the Radio Division of the Department of Commerce. To the technical requirements may, of course, be added other requirements based upon the public interest which the station is endeavoring to serve. The technical requirements which may be specified include such points as accuracy of maintenance of frequency, freedom from undesired emissions such as harmonics, amount of power used, and the percentage of undistorted modulation of the emitted wave. Consideration will need to be given to the numerical values which should be specified for each of these and similar characteristics in the case of stations of each of the several classes.

314 Allocations—Examples A and B.

The examples of allocations attached hereto indicate the State to which each channel may be assigned, together with a designation of the class of the station. Assignments to the territorial possessions of the United States have not been included.

The particular number of assignments to each State is dependent upon the population figures which are used. These two examples differ slightly in this respect since Example A is based on the census of January 1, 1920, while Example B is based upon the official estimates made by the Bureau of the Census as of July 1, 1928. They may nevertheless serve satisfactorily as a basis for study.

The determination of which particular stations or group of stations shall have the assignments made to the several States, in either of the attached allocations, is a matter for decision by the commission. The relations between frequency separation, geographical separation, and power given in the basic allocation which is finally adopted should be studied with care to make sure that they provide such freedom from interference as is consistent with a maximum of broadcasting service.

Allocation of Broadcasting Channels to States.

Channel.	Example A. State.	Class.	Example B. State.	Class.
550	Pennsylvania	B	Pennsylvania	B
	Missouri	B	Missouri	B
560	Massachusetts ...	B	Massachusetts	B
	North Carolina...	B	North Carolina....	B
	California	B	California	B
570	.....	..	Pennsylvania	B
			Texas	B
[1] 580	New York.....	B	New York	B
	Illinois	B	Illinois	B
	Utah	B	Utah	B
590	Ohio	B	Ohio	B
	Missouri	B	Missouri	B
	Kansas	B		
[1] 600	Connecticut	B	Connecticut	B
	Alabama	B	Alabama	B
	Florida	B	Colorado	B
	Colorado	B		
610	Washington	C	Washington	C
620	Texas	C	Texas	C
[1] 630	Pennsylvania ...	B	Pennsylvania	B
	Tennessee	B	Tennessee	B
	Mississippi	B		
640	New York.....	C	New York.....	C
650	Nebraska	C	Ohio	B
	Kansas	C	Nebraska	B
660	Michigan	C	Michigan	C
670	California	C	California	C
680	Tennessee	C	Tennessee	C
690	Canadian exclusive	..	Canadian exclusive.	
700	Maryland	C	New York.....	B
	Delaware	C	North Carolina....	B
	District of Columbia	C	Utah	B
710	Illinois	C	Illinois	C
720	Pennsylvania	C	Pennsylvania	C
730	Canadian exclusive	..	Canadian exclusive.	

740	Colorado	C	Colorado	C
750	Georgia	C	Georgia	C
760	New Jersey	C	New Jersey	C
770	Iowa	C	Iowa	B
			Virginia	B
[1] 780	Kentucky	B	Kentucky	B
	Minnesota	B	Minnesota	B
790	Ohio	C	Ohio	C
800	California	C	California	C
810	Alabama	C	Alabama	C
820	Massachusetts	C	Massachusetts	C
830	Minnesota	C	Minnesota	C
840	Canadian exclusive	..	Canadian exclusive.	
850	Michigan	C	Pennsylvania	B
	Pennsylvania	C	South Carolina	B
860	Montana	C	Maryland	B
	Wyoming	C	Indiana	B
			Montana	B
870	Florida	C	New Jersey	B
	South Carolina	C	Florida	B
			Colorado	B
[1] 880	Rhode Island	..	Rhode Island	B
	Wisconsin	B	Wisconsin	B
[1] 890	Pennsylvania	B	Pennsylvania	B
	Louisiana	B	Arkansas	B
	Arkansas	B	California	B
	California	B		
900	New York	C	New York	C
910	Canadian exclusive	..	Canadian exclusive.	
920	Illinois	C	Illinois	C
[1] 930	New York State	B	New York State	B
	Georgia	B	Georgia	B
	Washington	B	Washington	B
940	Kentucky	C	Kentucky	B
			Minnesota	B
950	California	C	California	C
960	Canadian exclusive	..	Canadian exclusive.	

[1] Canadian sharer under Examples A and B.

	Example A.		Example B.	
Channel.	State.	Class.	State.	Class.
970	Texas	C	Texas	C
980	New Jersey	C	Delaware	B
	Delaware	C	Wisconsin	B
	Maryland	C	Washington	C
	District of Columbia	C		
990	Missouri	C	Missouri	C
1,000	Pennsylvania	C	Pennsylvania	C
[1] 1,100	New York	B	New York	B
	Illinois	B	Illinois	B
	California	B	California	B
1,020	New Mexico	C	Vermont	B
	Arizona	C	Georgia	B
	Utah	C	Arizona	B
1,030	Canadian exclusive	..	Canadian exclusive.	
1,040	Louisiana	C	Pennsylvania	B
			Louisiana	B
1,050	Connecticut	C	Connecticut	B
	Rhode Island	C	Kansas	B
			Nevada	B
1,060	Wisconsin	C	Wisconsin	C
1,070	Ohio	C	Ohio	B
	West Virginia	C	Illinois	B
1,080	California	C	California	B
1,090	Oklahoma	C	West Virginia	B
			Oklahoma	B
1,100	New York State	C	New York State	C
315				
1,110	Indiana	C	Indiana	C
1,120	New York	B	New York	B
	New Jersey	B		
	Louisiana	B	Louisiana	B
	New Mexico	B	New Mexico	B
	Arizona	B		
1,130	Virginia	C	Virginia	B
			Minnesota	B
1,140	Idaho	C	New Jersey	B
	Washington	C	Alabama	B
			Idaho	B

1,150	North Carolina	C	North Carolina	C
1,160	Maine	C	Massachusetts	B
	New Hampshire	C	Texas	B
	Vermont	C	California	B
	Massachusetts	C		
1,170	North Dakota	C	Michigan	B
	South Dakota	C	South Dakota	B
1,180	Ohio	C	Ohio	C
1,190	Oregon	C	New York	B
			Florida	B
			Oregon	B
1,200	Virginia	B	Virginia	B
	Oklahoma	B	Oklahoma	B
1,210	Ohio	B	Ohio	B
	North Dakota	B	North Dakota	B
	South Dakota	B		
1,220	Mississippi	C	New Hampshire	B
	Arkansas	C	Mississippi	B
			California	B
1,230	New York	C	New York	C
1,240	Illinois	C	Michigan	B
	Missouri	C	Illinois	B
1,250	Pennsylvania	C	Pennsylvania	C
1,260	New York State	B	New York State	B
	Wisconsin	B	Wisconsin	B
	California	B	California	B
1,270	Michigan	B	Michigan	B
	Nebraska	B	Nebraska	B
1,280	Massachusetts	B	Massachusetts	B
	North Carolina	B	North Carolina	B
	Oregon	B	Oregon	B
1,290	Ohio	B	Ohio	B
	Texas	B	Texas	B
1,300	New Jersey	B	New Jersey	B
	Illinois	B	Illinois	B
	Wyoming	B	Wyoming	B
	Nevada	B		
1,310	Michigan	B	Michigan	B
1,310	Iowa	B	Iowa	B
1,320	District of Columbia	B	District of Columbia	B
	Mississippi	B	Mississippi	B
	California	C	California	B

Channel.	Example A. State.	Class.	Example B. State.	Class.
1,330	West Virginia	B	West Virginia	B
	Arkansas	B	Arkansas	B
1,340	New York	B	New York	B
	Indiana	B	Indiana	B
	Montana	B	Montana	B
1,350	5 station in each	A	5 stations in each	A
1,360	do	A	do	A
1,370	Pennsylvania	B	Pennsylvania	B
	Missouri	B	Missouri	B
1,380	New York State	B	New York State	B
	South Carolina	B	South Carolina	B
	Washington	B	Washington	B
1,390	Ohio	B	Ohio	B
	Texas	B	Texas	B
	Oklahoma	B		
1,400	Maine	B	Maine	B
	New Hampshire	B		
	Illinois	B	Illinois	B
	California	B	California	B
1,410	5 station in each	A	5 stations in each	A
1,420	Pennsylvania	B	Pennsylvania	B
	Virginia	B		
	Iowa	B	Iowa	B
1,430	New Jersey	B	New Jersey	B
	Georgia	B	Georgia	B
	Colorado	B	Colorado	B
1,440	Michigan	B	Michigan	B
	Tennessee	B	Tennessee	B
1,450	Indiana	B	Indiana	B
	Maryland	B	Maryland	B
	Idaho	B	Idaho	B
1,460	Pennsylvania	B	Pennsylvania	B
	Kansas	B	Kansas	B
1,470	New York	B	New York	B
	Alabama	B	Alabama	B
	California	B	California	B
1,480	Kentucky	B	Kentucky	B
	Texas	B	Texas	B

1,490	Massachusetts ...	B	Massachusetts	B
	Texas	B	Illinois	B
			Washington	B
1,500	5 stations in each[3].	A	5 stations in each[3].	A

[1] Canadian shared under Examples A and B.
[2] Canadian shared under Example A only.
[3] Including portable stations.

Appendix E (4).

Report of Broadcasting Committee of Institute of Radio Engineers Submitted in Part April 6, 1928.

The broadcast committee of the Institute of Radio Engineers submitted the following report April 6, 1928:

"At a regular meeting of the board of direction of the Institute of Radio Enginners held on April 4, 1928, letters from the Federal Radio Commission requesting certain suggestions from the institute regarding the allocation of broadcast channels to zones and States were read.

"It was decided by the board of direction that the invitation of the commission to send representatives to an informal conference to be held in Washington on April 6 to discuss these matters should be accepted.

"A committee composed of the following members
316 of the Institute of Radio Engineers was appointed:
R. H. Marriott (chairman), Dr. J. H. Dellinger, C. W. Horn, and L. E. Whittemore.

"The board took up a technical discussion of the matters contained in the letters from the Federal Radio Commission, and there was more or less a consensus of opinion in regard to the following points.

"The following suggestions cover the present state of the art and are intended to apply to transmission during hours of darkness throughout the entire year. Daylight ranges are less and more duplication in daytime in frequency allocation may be permissible.

"It is suggested that the nomenclature as proposed by the commission regarding national, regional, and local classifications of channels and stations be changed to the former Department of Commerce nomenclature which referred to the channels and stations of these types as classes C, B, and A, respectively, since the names are substantially

descriptive of the interfering effect of the stations and may therefore be misleading.

"In the matter of normal power for each class of station it is the board of direction's suggestion that it is to be noted that in order to cover large areas of the United States, with particular reference to rural districts, it is necessary to interconnect very large groups of powerful stations, including even class C stations.

"Normal power of class A stations should not exceed 250 watts. The normal power of class B stations should be from 300 to 1,000 watts, inclusive. The normal power of class C stations should be from 5,000 to 50,000 watts, with a provision that as soon as practicable these limits be raised (in the class C rating) with due regard to limitations imposed by local interference and interference with neighboring channels in then current receivers. The above figures are based upon receptions with 5-tube radio receivers.

"It is suggested that in each class the following number of channels may be used and the following time divisions should be required.

	Number of channels.	Number of assignments per channel.	Number of full-time assignments.	Extent of time division.	Total number stations.
Class A.....	4	50	200	None.	200
Class B.....	36	2½	90	None.	90
Class C.....	50	1	50	None.	50

"Time division is undesirable in that it increases the cost of operation. For this reason it is felt it should be minimized to the greatest extent compatible with other requirements.

"The board suggests that stations of each class should be required to meet the following technical requirements:

"*Maintenance of frequency.*—The present requirement of 500 cycles if adhered to is sufficient to prevent stations from wandering outside their channel assignments. The way in which further improvement in frequency control can be of benefit is in the elimination of beat-note interference between stations simultaneously occupying the same channel. To do this requires a frequency stability of the order of plus or minus 25 cycles. It may reasonably be an-

ticipated that technical methods for obtaining such stability will be available in about two or three years, or perhaps less. It is suggested that when such equipment becomes readily and commercially available the requirement be made plus or minus 30 cycles. It is doubtful that any requirement between this value and the present value would be of sufficient beneficial effect to warrant its use as an interim measure.

"*Freedom from harmonics.*—Harmonics should be eliminated in so far as the state of the art permits.

"*Per cent undistorted modulation.*—It is of best interest to the broadcaster to use the highest degree of modulation consistent with good quality."

317 APPENDIX E (5).

Resolutions Adopted by Conference of Engineers on April 6, 1928.

Resolution.

It is the opinion of the engineers in attendance that from a radio engineering standpoint, under the provisions of the 1928 law requiring equality between zones, plan A, submitted for discussion by the commission, modified as follows, represents the maximum obtainable radio service from the available broadcasting channels in the present state of the art:

	Channels.		Full-time assignments.	
	Per zone.	United States.	Per zone.	United States.
Class C, 5,000 to 50,000 watts	10	50	10	50
Class B, 300 to 1,000 watts	18	36	18	90
Class A, 0 to 250 watts	4	4	40	200

APPENDIX E (6).

Summary of Discussion at Conference of Engineers on April 6, 1928, by Dr. J. H. Dellinger.

Division into classes.—The readjustment of station allocations required by the 1928 radio law gives the Radio Com-

mission an opportunity to provide the radio listeners of the United States with a grade of radio broadcasting service far superior to that furnished under the present allocation of stations. A redistribution of broadcasting stations among the States will, if the proposed classification of services be established, result in the satisfactory reception of more programs at higher signal strengths by a greater number of listeners in a larger total area than at present and will do this with less interference than now exists.

The fundamental change required to bring about any material improvement is to provide a considerable number of channels upon which only one station operates. The reason for this is a purely physical fact. Since heterodyne interference extends to many times the distance to which actual program service from a broadcasting station extends, operation of two or more stations on a channel results in an area of destructive interference much greater than the area in which program service is provided. Program service, free from interference, can be furnished at great distances from a station only when the station has exclusive use of its channel.

Since there are only 90 channels available for broadcasting in the United States, 90 is the upper limit of the possible number of stations giving service at considerable distances.

When two or more stations operate simultaneously on a channel, program service can be furnished at short distances from each station without destructive heterodyne interference within that distance, provided the stations are located at proper distances apart corresponding to the power used. Under these conditions many stations can be operated for short-distance local service on a single channel. Outside the local service areas heterodyne interference will prevent satisfactory reception.

Sections of the country remote from centers of population can not be given service except by the stations first mentioned, which have exclusive use of their channels (class C).

It follows that the country as a whole can be given the service it demands only by having more than one class of stations—(1) long-distance stations, operating on exclusive channels; (2) shorter-distance stations, operating on

shared channels. Considering the broadcasting needs and development in this country, it is apparent that the second class can advantageously be subdivided into stations of moderate distance range (class B) and small stations of very small distance range (class A).

Number of channels in each class.—The number
318 of channels (50) indicated for class C stations is the minimum that should be provided, in view of the far greater service, both distant and local, that will be rendered by such channels, owing to the absence of heterodyne interference and the consequent possibility of the use of greater power. The distribution of the remaining 40 channels between classes B and A represents the best judgment of the engineers from present information. A further study should be made of this point on the basis of service requirements of various areas of the country. It is believed that the final answer on this point will not depart widely from the figures given.

Duplication of assignments per channel.—It is clear that the stations depended upon for service over large areas must operate on heterodyne-free channels and that therefore there must be only one assignment to each class C channel.

The moderate-distance (class B) and short-distance (class A) channels may each be used by a number of stations in simultaneous operation, since the only desideratum in good service within the local service range of each station. The power required for moderate-distance service (class B) will not permit as much duplication of stations on one channel as will the smaller power required for short-distance service (class A).

The amount of duplication recommended is: For each class B channel, on the average, two and a half assignments in the United States (i. e., the assignment of every other channel in each zone); and for each class C channel, 50 assignments in the United States (10 in each zone).

The limitation to two and a half assignments for each class B channel is determined by the geographical circumstances of the two smallest zones (1 and 2), together with the requirement of the law of equality between zones. Points in zones 1 and 2 average less than 500 miles apart,

a distance too small to permit the assignment of any one channel in both zones with the recommended power.

Equality with respect to classes.—The provisions of the law requiring equal distribution among the zones and, according to population, among the States of station licenses, frequencies, time, and power must be applied separately to each of the three classes of stations mentioned. This results from the inclusion of the number of licenses as one of the elements of equal distribution.

Station power.—In order to merit the use of a class C channel a station must be competent to serve a large area. It follows that no class C station should be allowed to operate with less than 5,000-watts power. The only upper limit for this class need be that fixed by the production of interchannel interference, and, in consideration of the geographical distribution possible, may be 50,000 watts at the present time.

For the moderate-distance (class B) channels, powers of 300 to 1,000 watts will give satisfactory service, and for the short-distance (class A) channels power should not exceed 250 watts per station because of the extensive duplication permitted.

As an exception to these general recommendations for classes B and A, it is noted that where two or more stations operating on the same channel are all increased in power by the same factor their heterodyne-free service ranges will be substantially unaffected and a better signal (with respect to noise interference) will be delivered within each service area. This will be at the expense of producing a stronger heterodyne whistle outside the service areas of the two stations concerned.

Time division.—The expedient of time division does not in general lead to superior service to the listener. It is inherently uneconomic. Where several stations in an area are now dividing time the duplication of plant and overhead necessarily results in poorer service than would result were these stations to be consolidated into a single station using all the time.

For the class C stations particularly time division should not be allowed. An exclusive (class C) channel is capable of delivering such excellent service over large areas that care should be taken not to restrict the possible service

from these channels by an uneconomic arrangement such as time division.

For the class B and class A channels there will doubtless be local conditions demanding, and perhaps justifying, time division in spite of its inherently uneconomic nature. However, the application of time division has been made difficult under the terms of the new law. Since the law requires equality of the number of hours and licenses among the zones, and, according to population, among the States within each zone, if time is divided on a given channel among several stations in any one State, this division must be duplicated on some channel in every other zone and proportionally in every State.

319 The same difficulty will exist in any attempt to divide time between stations located in different zones, as might be sought, e. g., to take advantage of the time difference between the east and west coasts. Time division between stations in widely separated localities is subject to the further objection of seriously complicating the maintenance of the proper frequency separation between stations in each of the localities to minimize interchannel interference.

APPENDIX E (7)

Copy of a Communication from the Hon. Edwin L. Davis, Congressman from Tennessee.

April 6, 1928.

Hon. E. O. Sykes, Acting Chairman,
And Other Members, Federal Radio Commission,
Washington, D. C.

DEAR GENTLEMEN:

This acknowledges receipt of yours of the 31st ultimo inclosing copy of letter to Mr. White, and copy of tentative plans under consideration for making an allocation of broadcasting stations in conformity with the newly enacted radio law, for which I thank you.

I had intended to accept your invitation to attend your meeting to-day, at which time you invite a discussion and criticism of these plans, but a matter has arisen which prevents my attendance at your meeting.

However, I wish to avail myself of the opportunity which you have kindly accorded to give any suggestions which may occur to me.

I have not had opportunity to thoroughly consider all features of your tentative plan, nor have I the time to now do more than make a few general suggestions for your consideration.

I wish to first refer to the language on page 10 of your tentative plan, as follows:

"It is recognized that certain stations may not use the full power authorized for channels to which they are assigned. This may make possible the temporary use of additional power on other channels where permissible from a radio interference standpoint. Since each class C channel is used exclusively by a single full-time assignment, there is no technical reason why this should be fixed at any limit below that which will be determined by economic considerations. In order, however, to reach a definite value for the total power authorized for use on these channels, the power which may be used for each class C assignment may be fixed tentatively at 20,000 watts. This may be increased at a later time, thus increasing the general power level of all class C assignments in all zones."

I respectfully, but most emphatically, dissent from the view that "there is no technical reason why this should be fixed at any limit below that which will be determined by economic considerations." While there would probably be no interference between class C stations operating exclusively on a single full-time wave length assignment with at least 50 kilocycles separation from similar stations, yet they would undoubtedly interfere with stations operating on assignments on each side of them.

I respectfully insist that the maximum station power should be 10,000 watts. The harmful effects of any power in excess of that far outweigh the benefits accruing to the the station employing the high power. In this connection, I beg to call attention to the testimony of Commissioner Caldwell appearing on page 111 of the House committee hearings.

I also suggest that a 500-watt station can not consistently project anything like a satisfactory regional program; it is insufficient in many instances for even a State station.

In this connection, I beg to refer to the testimony of Commissioner Pickard on page 230 of the House committee hearings, as well as the testimony of Commissioners Pickard and Caldwell with respect to the radius of different powered stations.

Wherefore I suggest that there is a proper place for both 5,000 and 1,000 watt stations, and that a drop from class C stations to 500 watts is wholly inadvisable and unjustified.

Furthermore, I suggest that the tentative plan is overloaded with so-called national stations, to which it is proposed to assign not only the most of the wave lengths,
320 but of the aggregate power as well. It occurs to me that it would be much more preferable and prove more satisfactory as a whole to provide for 25 stations authorized to employ not exceeding 10,000-watt power, and each assigned exclusively a single full-time wave length; and have 25 stations authorized to use not exceeding 5,000-watt power; 100 stations authorized to use 1,000-watt power, and whatever number and division that might be deemed advisable of stations authorized to employ 500 watts, 100 watts or 50 watts or less; this number of course being made to conform to the number of stations and the aggregate station power which the commission may determine to be proper for the broadcast structure.

Of course, I favor an equal allocation to each zone and a fair and equitable allocation among the States within each zone, according to population.

I think it would be entirely proper and in keeping with the act, in the event that any zone should not desire its full quota of maximum power stations, to divide such power among smaller powered stations within such zone, if there was a demand therefor.

On page 8 of your tentative plan, it is suggested that the Canadian shared channels should be used by the United States in Zone III, and a set-up accordingly is proposed. I respectfully dissent from this suggestion. If Canadian stations should employ high power on these channels, it would impair, if not destroy, their usefulness in the United States. While it would be proper to allocate a fair portion of these Canadian shared channels to Zone III, yet they should not be operated with anything like all of them. Most of the western section of this country and all

of the southern part of Zone V would be further removed from Canadian stations than would Zone III. Some sections of Zone III are nearer Canada than some of the States in Zone IV, and are substantially as near as the southern portions of Zones I and II.

Furthermore, in considering assignments to Zone III and the southern part of Zone V, consideration should be given to the channels being used in Mexico and Cuba. In fact, unless there is some definite agreement made between the United States and Mexico and Cuba along the line of the agreement with Canada, this is liable to become a disturbing factor.

No generally satisfactory result can be obtained without recognizing and dealing in a fair and scientific manner with the chain broadcasters. According to expressions of you gentlemen at the hearings, you recognize the importance and necessity of solving that problem in some manner. Chain programs should undoubtedly be made available in so far as practicable to those who desire to hear them, and yet they should not be given such assignments of wave lengths and power as will prevent the satisfactory broadcasting and reception of independent programs. High power is not needed for broadcasting chain programs except perhaps in the case of isolated stations. Furthermore, in spite of the statements of interested engineers to the contrary, chain programs can be successfully broadcast on the same wave length. It is certainly practical and feasible for the chain programs to be broadcast upon a very few wave lengths. Certainly their stations should not be permitted to broadcast chain programs on high power and each on a separate wave length; it would probably be proper to permit the broadcasting of chain programs on the maximum power in cases where such station is so far removed from other stations broadcasting the chain program that such power is required to send its program out to the listeners dependent upon such station for reception; where such high power is necessary, it should be granted to the stations nearest to the audience to be served. Stations broadcasting their chain programs should not be permitted to use more power than is necessary to serve the listeners within the area of such station who can not be satisfactorily served by other stations broadcasting the same chain program. In

other words, even from the standpoint of getting the National Broadcasting Company chain program to the various sections of the country, there is no occasion for granting to such stations a monopoly of power or desirable and cleared channels, not to speak of the fact that such an allocation would deprive stations broadcasting independent programs of the share to which they are entitled, and which the public are entitled to hear. A proper limitation on power to be used by the chain stations can be imposed either in the first instance, or at least when they are broadcasting chain programs.

In conclusion, I wish to repeat that the equalization amendment embraced in the recent radio act is constructive and not destructive. If such provision is carried into effect in accordance with its terms, purpose, and spirit, as I assume you gentlemen are endeavoring to do, we will have a very much improved broadcast situation throughout the country. The equalization provision is workable
321 from a scientific standpoint, as well as from the stndpoint of fairness and justice. As was well stated in last Sunday's issue of the New York Herald Tribune "there is general agreement here that the new law can eventually be worked out to the satisfaction of the entire country."

I wish to again express my appreciation of the invitation to submit any suggestions to your commission which might occur to me. The foregonig suggestions are given for your consideration, and I trust that they may be received in the spirit in which given.

Yours sincerely,

(Signed) EWIN L. DAVIS.

APPENDIX E (8).

Memorandum Submitted by Broadcasters, Manufacturers, and Dealers at Hearing on April 23, 1928.

The Federal Radio Commsision held an informal meeting Monday, April 23, 1928, in order to give broadcasters, radio manufacturers, and dealers an opportunity to present their views regarding changes in the broadcasting structure in keeping with the amendment to the radio act of 1927.

For its guidance the commission desired to get opinions on the subject from all thoughtful persons familiar with the radio problem. Several unable to attend the meeting submitted their views in writing.

The discussion was confined to basic principles as laid down by the amendment of the radio act of 1927, requiring equal distribution of radio facilities throughout the country, and had no bearing whatever on which stations should be selected for the new broadcasting structure. Merits of individual stations were not considered.

At that hearing representatives of the National Association of Broadcasters, the Radio Manufacturers' Association, and the Federated Radio Trades Association submitted the following memorandum:

"Through the courtesy of the Federal Radio Commission, we, the National Association of Broadcasters, the Federated Radio Trades Association, and the Radio Manufacturers' Association, hereby express our views regarding the difficult problems before the commission in an effort to assist in the solution of those problems. Committees representing the three associations met in Chicago on April 16, 17, and 18, first separately and later jointly, and unanimously agreed to the submissoin of the following memorandum:

"These three associations believe that the purpose of any reallocation of broadcasting licenses under the amended law is the ultimate establishment of conditions of interference free radio reception in which the maximum number of listeners throughout the Nation will have the maximum possible choice of broadcast program service with the maximum possible signal strength. Any steps which may be taken to comply with the requirements of the radio law as amended should look toward the establishment of such improved conditions with the minimum of delay.

"It appears in the present state of the art that the readjustment necessary to improve radio service and to comply with the radio law as amended should include as its ultimate goal a reduction in the number of stations.

"Although we realize that in making such a readjustment it is necessary to consider the problem as a whole because of the effect of stations on each other, nevertheless, the new allocations should be made so as to bring about at the out-

set as small a change in existing allocations as is consistent with the ultimate attainment for the listening public of such advantages as are possible within the limits of the existing law.

"We recognize that engineering advice is essential in the establishment of a comprehensive broadcasting plan. It is not our purpose, however, to discuss the plan which has been submitted by a committee of engineers, but realizing that there are other considerations which should be taken into account, we have prepared our observations to this end.

"Being in immediate contact with the economic and commercial aspects of the situation, we offer this memorandum from that viewpoint, not as a completely evolved plan but as a suggested method of procedure. This method contemplates the early establishment of a broadcasting system in conformity with the engineering basis which has been explained to the Federal Radio Commission.

322 "In order to comply with the radio law as amended in so far as it requires an equal distribution of broadcasting stations among the five zones there are, generally speaking, three typical methods of procedure:

"1. To take as the basis (or, to adopt a convenient term, 'common denominator') for such compliance a number of stations which would permit the maximum of heterodyne-free channels consistent with the varied requirements of service to the radio-receiving public; for example, 110 per zone, or a total of 550. This method would require the elimination of a large number of stations.

"2. To take as the common denominator one-fifth of the total number of station licenses, which, according to our information, is approximately 700 stations, or 140 stations per zone. This would permit the application of the 'borrowing clause' of the amendment to the detriment of the fourth zone only and to the advantage of the other four zones.

"3. To take as the common denominator the number of stations now licensed in the zone having the greatest number of stations, which, according to our information, is the fourth zone, with 208 stations. This would give the hypothetical total of 1,040 stations. This or any other plan contemplating an increase in the number of stations should not be considered for many reasons.

"We favor the second of the above methods of procedure, with an approach to the first as best calculated to achieve the ideal ultimately to be realized, as soon as time and practical considertions permit. The outline of the first two methods of procedure is set forth in Exhibit A.

"In order to comply with the radio law as amended in so far as it requires an equal distribution of power among the five zones, the common denominator as to power for each zone should be not less than one-fifth of the total power now authorized under existing licenses and construction permits. Any increase over this amount should be cautiously applied to stations on relatively cleared channels and in such manner as not to increase heterodyne interference.

"The application of the three common denominators to the existing situation is outlined in Exhibit B, the three common denominators being:

"1. Two hundred and fifty kilowatts for each zone.

"2. One-fifth of the total power now authorized under existing licenses for each zone.

"3. The maximum power now licensed in the zone having the largest allotment of power under existing licenses, which is approximately 218 kilowatts in the first zone.

"In order to comply with the radio law as amended in so far as it requires an equal distribution of frequencies the basis for equalization should be taken as the average of the present zone frequency assignments which, according to our information, is 66.

"Inasmuch as the existing frequency assignments naturally classify themselves into five groups, namely—

"Frequencies assigned to one zone only,

"Frequencies shared by two zones,

"Frequencies shared by three zones,

"Frequencies shared by four zones,

"Frequencies shared by five zones,

assignments of frequencies to zones should be based upon this classification.

"In making zone frequency assignments those existing assignments which are recognized as being outstanding in the public interest, convenience, and necessity should not be materially changed in the initial approach to the establishment of an ideal zone frequency equalization.

"Illustrative of the thought above expressed, a chart (Exhibit C) is submitted which shows an equal allocation of a number of existing assignments to each zone.

"As for the equalization of periods of operation between the five zones, it is our opinion that a maximum quota of hours of operation for each zone should be fixed at a point sufficiently high to take into consideration the maximum requirements of any one zone in the establishment of a character of service that is compatible with public interest, convenience, and necessity.

"It is our belief that the licenses of stations which persistently violate regulations covering the operation of stations should be revoked in acordance with the provisions of the Federal radio law.

"Respectfully submitted.

"THE NATIONAL ASSOCIATION OF BROADCASTERS.
"FEDERATED RADIO TRADES ASSOCIATION.
"RADIO MANUFACTURERS ASSOCIATION."

323 EXHIBIT A.

Allocation of Station Licenses in Accordance with the Use of Two Typical "Common Denominators."

Zone I:	Present.	Using 140 as common denominator.	Using 110 as common denominator.
Maine	3	4	3
New Hampshire	2	2	2
Vermont	2	2	1
Massachusetts	21	22	17
Connecticut	5	8	7
Rhode Island	9	4	3
New York	55	60	47
New Jersey	25	19	17
Delaware	1	1	1
Maryland	5	8	6
District of Columbia	3	3	2

	Present.	Using 140 as common denominator.	Using 110 as common denominator.
Porto Rico	1	7	6
Virgin Islands	0	1	1
Total	132	141	113
Zone II:			
Pennsylvania	45	48	38
Virginia	12	13	10
West Virginia	4	8	7
Ohio	29	33	26
Michigan	21	25	20
Kentucky	3	13	10
Total	114	140	111
Zone III:			
North Carolina	4	15	11
South Carolina	1	9	6
Georgia	5	16	13
Florida	13	7	5
Alabama	5	13	10
Tennessee	17	12	10
Mississippi	3	9	7
Arkansas	4	10	8
Louisiana	13	27	21
Oklahoma	10	12	9
Total	75	130	100
Zone IV:			
Indiana	18	17	13
Illinois	67	39	31
Wisconsin	19	16	12
Minnesota	18	14	11
North Dakota	6	3	2
South Dakota	9	4	3
Iowa	24	13	10

Nebraska	17	8	6
Kansas	7	7	6
Missouri	25	19	15
Total	210	140	109
Zone V:			
Montana	6	9	7
Idaho	4	7	5
Wyoming	1	3	2
Colorado	16	13	10
New Mexico	2	5	4
Arizona	5	5	4
Utah	4	6	5
Nevada	0	1	1
Washington	23	20	15
Oregon	15	10	7
California	52	56	43
Hawaii	2	4	3
Alaska	3	1	1
Total	133	140	107

Exhibit B.

Allocation of Power in Accordance with the Use of Three "Common Denominators."

First Zone	Present	250,000	138,000	218,000
Maine	5,350	7,000	3,860	6,100
New Hampshire	1,050	4,000	2,210	3,490
Vermont	110	3,250	1,795	2,830
Massachusetts	20,010	39,000	21,550	34,000
Connecticut	2,100	15,000	8,270	13,100
Rhode Island	2,150	6,250	3,450	5,450
New York	163,250	106,250	57,950	92.600
New Jersey	16,165	34,250	18,900	29,900
Delaware	100	2,000	1,105	1,745
Maryland	6,050	14,500	8,000	12,650
District of Columbia	1,150	5,000	2,760	4,360
Porto Rico	500	12,750	7,030	11,100
Virgin Islands	0	250	138	218
Total	217,985	249,500	137,018	217,543

Second Zone				
Pennsylvania	59,575	86,000	47,500	75,900
Virginia	13,330	22,500	12,400	19,600
West Virginia	660	15,000	8,290	13,100
Ohio	27,595	59,250	32,700	51,600
Michigan	10,475	44,250	24,400	38,600
Kentucky	1,600	22,500	12,400	19,600
Total	113,235	249,500	137,690	218,400
Third Zone				
North Carolina	12,350	26,000	14,350	23,650
South Carolna	90	16,500	9,100	14,400
Georgia	2,520	238,500	15,700	24,900
Florida	7,200	12,250	6,750	10,700
Alabama	1,325	23,000	12,700	20,500
Tennessee	22,990	22,250	12,290	19,400
Mississippi	825	16,000	8,730	13,950
Arkansas	1,865	17,250	9,520	15,050
Louisiana	6,330	17,500	9,650	15,250
Texas	19,815	48,500	22,600	42,300
Oklahoma	11,175	21,250	11,700	18,500
Total	86,485	249,000	133,090	218,600

EXHIBIT B—Continued.

	Present	250,000	138,000	218,000
Fourth Zone				
Indiana	9,565	30,250	16,700	27,600
Illinois	91,940	70,000	37,100	63,900
Wisconsin	7,985	28,000	15,450	25,500
Minnesota	12,295	25,750	14,200	23,500
North Dakota	1,230	6,000	3,310	5,470
South Dakota	2,595	6,500	3,590	5,930
Iowa	29,740	23,250	12,850	20,250
Nebraska	8,470	13,250	7,300	11,550
Kansas	5,000	12,750	7,050	11,100
Missouri	17,865	33,500	18,500	30,600
Total	186,830	249,250	136,040	225,400
Fifth Zone				
Montana	965	15,750	8,370	13,700
Idaho	5,310	11,750	6,750	10,250
Wyoming	500	5,250	2,790	4,580
Colorado	9,810	23,750	13,100	20,700
New Mexico	7,550	8,500	4,520	7,400
Arizona	965	10,000	5,320	8,720
Utah	5,600	11,500	6,120	10,000
Nevada	0	1,750	930	1,525

Washington	11,175	34,750	18,500	30,300
Oregon	6,950	19,750	9,450	15,450
California	33,760	98,500	52,400	86,000
Hawaii	750	6,500	3,430	5,660
Alaska	610	1,250	665	1,090
Total	83,960	249,000	132,375	215,375

325 EXHIBIT C.

The following chart accompanied the proposal of the radio industry submitted Monday, April 23, to the Federal Radio Commission by the National Association of Broadcasters, Radio Manufacturers Association, and Federated Radio Trades Association:

Kilocycles.	I.	II.	III.	IV.	V.
550	2	0	X2	4	0
560	X2	0	0	X1	1
570	X1	0	0	X2	X1
580	1	1	X3	0	1
590	X1	0	0	X1	X1
600	0	0	X2	0	0
610	X1	0	0	0	X1
620	X1	1	2	X3	X2
630	0	0	X1	1	0
640	X1	0	0	0	X1
650	X2	1	X2	X1	1
660	X1	0	0	0	X1
670	0	0	0	X2	1
680	0	X3	0	1	X1
690	C0	0	0	0	0
700	1	X1	0	0	0
710	X1	0	0	1	X1
720	0	0	0	X2	0
730	C0	0	0	0	0
740	0	X2	0	X1	0
750	0	X2	0	1	X2
760	X3	0	X1	1	3
770	X1	0	0	X3	0
780	1	2	X2	0	X1
790	X1	0	0	1	0
800	0	0	0	X1	X1
810	X2	0	0	1	X1
820	0	0	0	X2	X1
830	0	X1	0	0	X2
840	C0	0	0	0	0
850	0	X1	0	1	X1
860	1	X2	X1	0	X1

870	0	0	0	X2	2
880	0	0	X2	2	0
890	0	0	X1	0	1
900	X2	0	X2	4	1
910	C0	0	0	0	0
920	X2	0	0	0	X1
930	2	X1	0	2	1
940	0	0	0	X3	0
950	0	X1	0	0	2
960	C0	0	0	0	0
970	X2	0	0	0	X1
980	1	0	0	X2	0
990	X1	0	1	1	1
1,000	0	X2	0	X1	1
1,010	2	1	X3	1	1
1,020	X3	1	1	3	1
1,030	C0	0	0	0	0
1,040	2	2	X2	X2	1
1,050	X1	0	1	4	X1
1,060	1	X2	0	0	2
1,070	X1	0	1	0	1
1,080	0	X2	X1	1	X1
1,090	1	0	1	X2	X3
1,100	X1	2	X1	3	5
1,110	0	X2	3	X5	3
1,120	3	3	X2	3	1
1,130	3	X1	X2	X1	0
1,140	2	X1	2	X3	4
1,150	1	X4	0	2	X1
1,160	1	0	X2	6	0
1,170	3	X2	0	X1	0
1,180	3	X1	1	X5	1
1,190	0	1	X4	3	1
1,200	0	X5	X5	4	X5
1,210	4	4	X1	10	2
1,220	3	X2	1	4	5
1,230	3	1	X2	2	2
1,240	4	0	0	4	1
1,250	2	2	X3	4	1
1,260	1	X2	5	2	0
1,270	3	X5	2	3	1
1,280	0	5	3	4	2

Kilocycles.	I.	II.	III.	IV.	V.
1,290	3	1	2	4	4
1,300	1	X5	3	2	4
1,310	1	1	5	X1	2
1,320	3	X2	2	4	3
1,330	3	1	X2	2	2
1,340	3	2	2	7	4
1,350	0	3	1	5	1
1,360	1	4	4	X3	3
1,370	3	1	0	1	2
1,380	X2	0	0	5	2
1,390	2	0	3	7	1
1,400	X2	4	0	2	2
1,410	1	2	0	3	1
1,420	5	2	1	1	1
1,430	1	3	2	6	4
1,440	1	2	0	8	1
1,450	5	2	3	1	1
1,460	1	3	2	3	1
1,470	5	1	1	8	0
1,480	0	X1	0	0	0
1,490	4	1	0	4	1
1,500	5	2	0	1	3

EXHIBIT CX.

[Submitted by National Association of Broadcasters, Radio Manufacturers Association, and Federated Radio Trades Association, showing typical distribution of frequencies.]

Kilocycles.	Zone. 1.	2.	3.	4.	5.
550	X	..	X	..	X
560	X	..	..	X	X
570	X	..	..	X	..
580[1]	X	X	X	..	X
590	X	..	X	..	X
600[1]	..	X	X	..	..
610	X	..	..	..	X
620	X	..	X	X	..
630[1]	..	..	X	X	..
640	X	..	..	..	X

650	..	X	X	..	..
660	X	..	..	..	X
670	..	..	..	X	X
680	..	X	X	..	X
690[2]	..	..	..	..	..
700	X	X	..	..	..
710	X	..	..	X	X
720	..	..	..	X	..
730[2]	..	..	..	..	..
740	..	X	..	X	..
750	..	X	..	X	X
760	X	..	X	X	X
770	X	..	..	X	..
326 780[1]	X	X	..	..	X
790	X	..	X	..	..
800	..	..	..	X	X
810	X	..	X	X	..
820	..	..	..	X	X
830	..	X	..	..	X
840[2]	..	..	..	..	..
850	..	X	..	X	X
860	X	X	X	..	X
870	..	..	..	X	X
880[1]	..	..	X	X	..
890[1]	..	X	X	..	..
900	X	..	X	X	X
910[2]	..	..	..	..	..
920	X	..	..	..	X
930[1]	X	X	..	X	X
940	..	..	..	X	X
950	..	X	..	..	X
960[2]	..	..	..	..	..
970	X	..	..	..	X
980	X	..	..	X	..
990	X	..	X	X	X
1,000	X	X	..	X	..
1,010[1]	X	X	X	X	X
1,020	X	X	X	X	X
1,030[2]	..	..	..	..	..
1,040	X	X	X	X	X

[1] Canada.

Kilocycles.	Zone. 1.	2.	3.	4.	5.
1,050	X	..	X	X	X
1,060	..	..	X	X	X
1,070	X	X	X	..	..
1,080	..	X	X	X	X
1,090	X	X	X	X	..
1,100	X	X	X	X	X
1,110	..	X	X	X	X
1,120[1]	X	X	X	X	X
1,130	X	X	X	X	..
1,140	X	X	X	X	X
1,150	X	X	..	X	X
1,160	..	X	X	X	..
1,170	X	X	X	X	..
1,180	..	..	X	X	X
1,190	..	X	X	X	X
1,200	..	X	X	X	X
1,210[1]	X	X	X	X	X
1,220	X	X	X	X	X
1,230	X	X	X	X	X
1,240	X	X	X	..	X
1,250	X	X	X	X	X
1,260	X	X	X	X	..
1,270	X	X	X	X	X
1,280	..	X	X	X	X
1,290	X	X	X	X	X
1,300	X	X	X	X	X
1,310	X	X	X	X	X
1,320	X	X	X	X	X
1,330	X	X	X	X	X
1,340	X	X	X	X	X
1,350	..	X	X	X	X
1,360	X	X	X	X	X
1,370	X	X	..	X	X
1,380	X	X	X	..	X
1,390	X	..	X	X	X
1,400	X	X	..	X	X
1,410	X	X	X	X	X
1,420	X	X	X	X	X
1,430	X	X	X	X	X

[1] Canadian shared.

1,440	X	X	..	X	X
1,450	X	X	X	X	X
1,460	X	X	X	X	X
1,470	X	X	X	X	..
1,480	..	X	X	..	..
1,490	X	X	X	X	X
1,500	X	X	X	X	X
Total	64	60	63	70	60

[1] Canadian shared.
[2] Canada.

Appendix E (9).

Suggestions of Louis B. F. Raycroft, Vice President of the National Electrical Manufacturers Association, Made to the Commission on April 23, 1928.

Two weeks ago, at the invitation of this commission, I came to Washington, on behalf of the radio manufacturers in the National Electrical Manufacturers Association, to be present at the presentation and discussion of a plan for the reallocation of broadcasting stations, which had been submitted by a group of engineers. At that time I was impressed with the necessity of giving the proposed plan careful study from the commercial standpoint, and so suggested to the commission. Since then I have been able to obtain the views of many of the executives of radio companies, particularly those engaged in the manufacture of receiving sets. I have also had the opportunity to personally review the engineers' plan in detail, and I now offer the following comments.

In the first place, I want to say that the commercial interests recognize very fully the great difficulties, technical, practical, and legal, with which the commission is confronted in discharging its obligations to the public and the industry under the amended Federal radio act. The commission may be assured of the earnest support of every responsible interest in the radio industry in successfully resolving these difficulties.

The engineers' plan as submitted to the commission involves certain fundamental ideas which appeal to every one

of us as being entirely reasonable and not subject to any vital disagreement. It sets up for example a definite objective of interference-free radio transmission and reception, equitably distributed throughout the country ,under the specific restrictions of the amended act. It recognizes the desirability of providing exclusive channels for a number of stations, able and willing to acept and dis-
327 charge the large responsibilities which such privileges would incur. Again, it accepts the principle that other stations must be content with an allocation under which their signals will not be interference free, except within restricted areas.

It is in the process of working toward the agreed objective that room is found for helpful suggestions to the commission. I am sure, for example, that a decision to attempt to immediately reach the stated objective would defeat its own purpose. The present broadcasting situation is so widely different that a wisely planned progressive program is the only means through which success may be made certain. An examination of the existing situation will provide the foundation on which to build a program. Of the 693 broadcasting stations in the country to-day, we find 127 occupying 66 channels in zone 1, 119 on 34 channels in zone 2, 103 on 51 channels in zone 3, 210 on 74 channels in zone 4, and 134 on 71 channels in zone 5. While these figures are by no means equal, yet they permit of equalization without too great difficulty, provided the earlier adjustments of number be reasonably balanced with the other factors involved.

In the equalization there are four distinct problems stated in the amendment—equality in the number of licenses, equality in the number of channels, equality in the allotment of time, and equality in station power, between the five zones, and in proportion to the population of the States within the zones. Obviously, the most difficult of these problems is the equality in the number of channels, and it is equally apparent that your program should first provide equality between the zones, before any attempt is made to establish proportionately to State populations within the zones. I can not pass this point without noting with great regret the unfortunate inequality made compulsory by the amendment, under which, for example, Texas, with a popu-

lation of 5,400,000 and an area of over 225,000 square miles, is granted only 3.9 per cent of the national total of channels, licenses, power, and time, while California, with only 4,433,000 population and less than 159,000 square miles, is granted the surprising total of 8.2 per cent of the entire national radio facilities. And it is not as though this was the only unjust discrepancy under an act which pretends to establish equality of broadcasting service. The State of Washington, with less than 1,600,000 population, is granted over 2.8 per cent, while Tennessee, with its much larger population of over 2,480,000, is granted less than 1.8 per cent. And so on.

Not only is the problem of equality in the number of channels the most difficult but from the viewpoint of improving broadcasting service it is the most important. From a practical angle the reallocation of channels is the principal and immediate method by which conditions can be improved. I beg to submit, therefore, the following specific suggestions:

1. An examination of the existing allocations indicates quite clearly that 28 of the 39 stations now authorized to use 5 kilowatts or more are of a character to justify their being considered for exclusive channels. These 28 stations are on channels which could be cleared without great difficulty. There appears to be no present basis for clearing more than this number of channels. Let us say, then, that the first step is to clear these channels, leaving these 28 stations on their present assignments.

2. These 28 stations should be permitted, perhaps even urged, to immediately increase their power to the maximum now employed by any of them in order that they may serve the greatest possible number of listeners.

3. If there are other existing stations not now considered suitable for exclusive channels but which demand such channels, as they can probably be accommodated on the channels to which they are now assigned, perhaps with slightly greater difficulty. In any event if they are found capable of delivering the required service construction permits should be issued and arrangements made to provide a cleared channel when they are ready.

4. In clearing the original 28 channels it will be necessary to reallocate approximately 58 stations. (It is to be noted that since these stations can not be moved geographically,

moving them to new channels will not change zone or State quotas of channels, powers, or number of stations.) The commission should invite any station which must be moved in order to clear a channel and which is in a State now having too many stations or too many channels to discontinue operation voluntarily. Some will comply with this request, and thus reduce the number of channels and licenses in excess of legal quotas.

5. Some stations will refuse to comply with such a request. If their demand to be permitted to continue seems to be justified, then they should be accommodated on some other channel. This should be done by assigning them to a channel now used in the same State but occupied by a more recent licensee, or one giving the poorest service, deviating from frequency, or otherwise obviously the weakest station. If no such station can be found, then the station to be moved must be inserted in a channel with others on divided time.

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6. The 28 stations above referred to occur as follows: I, 5; II, 5; III, 4; IV, 10; V, 3. Zones I, II, III, and V will be entitled to additional cleared channels if it is considered necessary to equalize the cleared channels by zones. The commission should let it be known that these zones can have these additional cleared channels when they can justify them.

7. Of the 90 American channels, after the twenty-eight-odd cleared channels have been deducted, there remain approximately 60, subject to further reduction as time goes on. These 60 channels are for the lower-powered nonexclusive services, which in the present state of the art can not be strictly heterodyne free, except in their local service areas. These should be so adjusted as to equalize the heterodyne interference in all parts of the country, or, in other words, so as to give each station the maximum possible local service area. This is to be done (*a*) by requiring that stations occupying the same channel shall have equal power; (*b*) establishing a minimum distance between stations of each class of power; and (*c*) determining from the stations now assigned to each such channel what the power (and spacing) for that channel is to be in order to require the minimum change in existing assignments. In some cases it will be desirable to allow or require a station to

increase its power in order to avoid changing its channel. The 60 nonexclusive channels should be classified on the above basis and the stations reassigned accordingly.

8. The next and final step will be to refuse to relicense stations which still represent too much power to a State, too many licenses to a State, or too may channels to a State. The stations to be thus discontinued should be those obviously least desirable or those in areas otherwise well served under the limitations of the law. The only alternative is to establish a single channel is the higher frequencies to which such stations may be transferred.

It will be apparent that I have given here only a brief outline of the program which I suggest for your consideration, and yet I believe that the essential features of a program that will meet with support from every interested group have been clearly pointed out. In closing let me state again the absolute necessity for building the new structure out of the present structure. No drastic step to sweep the board clean and start anew can be expected to succeed.

APPENDIX E (10).

Discussion of Proposals by Dr. J. H Dellinger at the Federal Radio Commission Hearing of April 23, 1928.

A number of the discussions offered at the hearing indicated that there has not been adequate understanding of the recommendations submitted to the Federal Radio Commission by the April 6 conference of engineers. This is particularly true of the proposals on broadcast allocations presented by the National Association of Broadcasters, the Radio Manufacturers' Association, etc. The recommendations made by these organizations did not constitute a definite plan. They set forth certain considerations but did not give a procedure for making the necessary allocations of broadcast stations under the radio act of 1928. These proposals will be referred to herein as the "broadcasters' plan."

The broadcasters' plan took definite and detailed account of only two of the four elements which must be equalized under the law, and (what is much more serious) took no account of the relations between the elements. These ele-

ments are frequencies, number of licenses, power, and time. It is only as you come to the relations between the four elements that you reach either the difficulties of the situation or its possibilities. For example, the interrelation between frequency and power is the heart of the problem. It is only by proper adjustment of these two factors with due regard to geographical separations that there can be any hope of reducing interference and making any material improvement in the present chaotic situation. The broadcasters' plan was devoted largely to illustrative di-
329 visions of number of licenses and power. In neglecting the first element, frequency, they sidestepped the real problem. In neglecting time division they overlooked the one possible means of retaining the present number of stations in an allocation which would be relatively free from destructive interference.

With their emphasis upon the possibilities of borrowing licenses and power between States and zones, it was apparent that the broadcasters' plan seeks mainly the retention of the status quo. It is only natural that broadcasters should have their thoughts primarily filled with questions of licenses and of power. Their plan presented little beyond obvious calculations as to rearrangement among States on the basis of various illustrative numbers of licenses and amounts of power. The only definite recommendations were a declaration (1) that approximately 700 stations should be provided for, (2) that the average power should be maintained at some figure at least equal to the present amount, and (3) that the number of changes made in the initial establishment of the new allocation should be kept a minimum. This plea for the status quo was doubtless conceived in a spirit of helpfulness based on a fear of litigations and of changes whose value might not be demonstrable in advance. It nevertheless reveals a serious, and almost total, lack of understanding of the import of the April 6 recommendations of the engineers.

Fortunately the broadcasters' plan contains a proviso that the engineers' recommendations should be followed as far as practicable. They can be followed in full and still bring about the aims covered by the three definite recommendations of the broadcasters' plan just mentioned. Thus they can meet all the aims of the broadcasters and give

them much more in addition. To clear up the present situation, eliminating the station assignments which introduce serious conflicts with the engineers' recommendations, would require a much less radical disruption of the present broadcast situation than is commonly thought. While the three definite aims included in the broadcasters' plan can thus be met, there are some features of their presentation which must be discarded, unless the idea of improvement in the broadcasting situation is abandoned. One of these is the idea of extensive borrowing, where the number of licenses, amount of power, etc., in various States or zones are materially different from the present situation. Such borrowing would increase interference and, furthermore, would be contrary to the law, except on a mere temporary basis. The division into five classes of power included in the broadcasters' plan is furthermore without justification and can not lead to an allocation as free from interference as the three classes of power included in the enginers' recommendations.

The engineers did not present essentially a "plan." They presented considerations or principles which underlie the broadcast allocation and certain recommendations that offer the best application of them that it is possible to work out.

The fatal weakness of the broadcasters' plan in so far as it differs from the engineers' recommendations was revealed by the answer to a question put to one of its proponents during the hearing. The question was asked as to what service could be expected outside of the so-called service area of each station under the plan. The reply was that no service could be expected at a distance and that the plan considered only the local service area around each station. This admits that the plan is no improvement, and claims to be none, over the present situation. Those persons living at points remote from radio stations could expect no service under this plan, just as at present. It is just here that the engineers' recommendations are distinct from any other plans which have been recommended in that the maximum possibility of avoiding heterodyne interference, and thus giving some service at considerable distances beyond the local-service area of each station is provided.

The broadcasters' plan sidesteps entirely the question as to the degree of simultaneous operation of the various stations. This again prevents this plan from being given any serious consideration, for simultaneous operation of several stations on a channel is the crux of the whole problem. Assuming that the plan contemplates all 700 stations operating simultaneously, reference to the data presented by the engineers on April 6 and to the report of the American Engineering Council of March 30, 1927, shows that destructive interference would result. This is particularly true because of the large number of stations crowded into the two smallest zones, Nos. 1 and 2.

Perhaps the chief point of the engineers' recommendations which has been overlooked is the outstanding importance of providing not less than 50 exclusive chan-
330 nels, together with the fact that very much more power can be used on exclusive channels than on shared channels. It is only on exclusive channels that listeners at a distance can receive service. The rural population of the country will be heavily discriminated against unless a large number of exclusive channels are provided. Furthermore, when channels are exclusive there is no necessity of holding their power down to any particular limit. While the engineers' recommendations stated that the limit for the exclusive channels might be 50 kilowatts at the present time, the only power limit need be that fixed by the production of interchannel interference. In other words, it is contemplated that with improvements in the radio art the power used on the exclusive channels may be increased without limit, thus increasing service to the rural population. On this account the recommendation in the broadcasters' plan that power be limited to 10 kilowatts would unnecessarily reduce the service which might be secured under the best broadcast allocation.

In reference to time division, while the engineers' recommendations pointed out its inherently uneconomic character and the difficulties of employing it under the law, they recognized that there will be conditions demanding and even justifying time division. Assuming time divisions aggregating the use of half time by every class B and class A station, and no time divisions for class C stations, there could be a total of 50 class C, 180 class B, and 400 class A

stations under the engineers' recommendations, a total of 630 stations. There would, of course, be some class B stations operating on full time, but there are many cases where local conditions make a station operate on very much less than half time, so an average arrangement of half-time operation could in fact be worked out.

Several speakers at the hearing emphasized that engineering considerations are not the only ones involved, and that other matters, financial problems, local conditions, etc., make some of the engineering recommendations impracticable. While it is true that the problem of broadcast allocation is too complex to be solved by straight engineering calculation, nevertheless its solution can not be right if it disregards any valid engineering principle. An engineering principle is nothing but an organized body of facts affecting a practical situation. An engineering program is a program in which the results of a future practical situation are predetermined from an organized body of facts. The engineers' recommendations regarding broadcast allocations represent the best available organized body of pertinent facts. Any allocation which proceeds counter to the sound principles included in these recommendations will reduce the advantage which the people of the United States could secure in the new allocation.

The fact is, the few objections which have been made to the engineers' recommendations and the occasional accusation of impracticability reveal merely a lack of comprehension of them and a fear that they will lead to a complete upheaval of all the present broadcasting structure. Some study indicates that a relatively minor disturbance of the present structure can produce a considerable degree of conformity to the engineers' recommendations and an astonishing improvement in the broadcast service available to the listeners. It is not to be supposed that the commission will neglect the opportunity, the duty, to make the necessary changes to bring about a tangible betterment of the situation.

Another objection to the engineers' recommendations from the practical viewpoint has been the accusation that it is difficult to convert it from a mere set of statements into a specific allocation. This is far from the truth. The

commission has only to determine which of the available 90 channels are to be assigned to each of the three classes of stations, and a little calculation gives a table of the frequencies, power, etc., available to each State. This having been done, the task of the commission becomes a judicial one. Through a hearing held in each State, or some other procedure, decisions will have to be reached as to which stations are entitled to utilize the broadcasting channels available.

It is believed that broadcasters and others will be more ready to advocate the engineers' recommendations when they understand that they can be put into effect without the feared complete destruction of the present broadcasting set-up. The broadcasters, in fact, are likely to be the principle advocates of the recommendations when they become aware of the superior service their stations can render under a sound engineering allocation.

331 APPENDIX E (11).

Tabulation of Percentages of Radio Facilities Assignable to Each State, Based on 1928 *Population Estimate of the United States Census Bureau.*

Experts employed by the commission made the following tabulation showing the percentages of radio facilities assignable to each State, under the 1928 "Equitable allocation" clause of the radio act, based upon estimates of 1928 population prepared by United States Census Bureau, which gives the total population of the United States as 121,649,342:

First Zone.

Commissioner, O. H. Caldwell.

State.	Population.	Per cent.
Maine	795,000	0.581
New Hampshire	456,000	.333
Vermont	352,428	.258
Massachusetts	4,290,000	3.135
Connecticut	1,667,000	1.218
Rhode Island	716,000	.524
New Jersey	3,821,000	2.795

New York	11,550,000	8.441
Delaware	244,000	0.178
Maryland	1,616,000	1.180
District of Columbia	552,000	.403
Porto Rico	1,299,809	.947
Virgin Islands	26,051	.019
Total	27,385,288	20.000

Second Zone.

Commissioner, Ire E. Robinson.

State.	Population.	Per cent.
Pennsylvania	9,854,000	7.010
Virginia	2,575,000	1.830
West Virginia	1,724,000	1.227
Ohio	6,826,000	4.855
Michigan	4,591,000	3.263
Kentucky	2,553,000	1.830
Total	28,123,000	20.000

Third Zone.

Commissioner, E. O. Sykes.

State.	Population.	Per cent.
North Carolina	2,938,000	2.091
South Carolina	1,864,000	1.328
Georgia	3,203,000	2.283
Florida	1,411,000	1.012
Alabama	2,573,000	1.835
Tennessee	2,502,000	1.782
Mississippi	1,790,618	1.275
Arkansas	1,944,000	1.385
Louisiana	1,950,000	1.389
Texas	5,487,000	3.900
Oklahoma	2,426,000	1.720
Total	28,088,618	20.000

Fourth Zone.

Commissioner, Sam Pickard.

State.	Population.	Per cent.
Indiana	3,176,000	2.372
Illinois	7,396,000	5.530
Wisconsin	2,953,000	2.208
North Dakota	641,192	.479
Minnesota	2,722,000	2.039
South Dakota	704,000	.526
Iowa	2,428,000	1.814
Nebraska	1,408,000	1.053
Kansas	1,835,000	1.372
Missouri	3,523,000	2.638
Total	26,786,192	20.000

332 APPENDIX E (11)—Continued.

Fifth Zone.

Commissioner, H. A. Lafount.

State.	Population.	Per cent.
Montana	548,889	0.975
Idaho	546,000	.970
Wyoming	247,000	.438
Colorado	1,090,000	1.935
New Mexico	396,000	.703
Arizona	474,000	.842
Utah	531,000	.933
Nevada	77,407	.137
Washington	1,587,000	2.818
Oregon	902,000	1.602
California	4,556,000	8.200
Territory of Hawaii (1920)	255,912	.453
Alaska (1920)	55,036	.0983
Total	11,266,244	20.000

333 New Allocation.

During the months of July and August, 1928, the commission, with the assistance of its engineering division, was endeavoring to work out an allocation of broadcasting stations with respect to frequency, power, and hours of operation that would conform as nearly as possible to the requirements of the Davis amendment. Commissioners Caldwell and Pickard constituted a committee for the purpose and Commissioner Lafount participated in their work. The best engineering advice in the country was sought and received. Several different plans were crystallized complete in every detail only to fail to meet the approval of the requisite majority of the commission. Finally, however, an allocation was achieved which met with the approval of four members of the commission. Commissioner Robinson voted against it, adhering to his belief that the Davis amendment was not intended to require a reallocation of the entire broadcasting spectrum to be made at one time, and that the equalization was to be a gradual process of changes which were, in the language of the amendment, to be accomplished only "when and in so far as there are applications therefor." He opposed the plan also because it included what, in his opinion, were excessive power assignments to certain stations.

The first step toward putting the new allocation into effect was the issuance of General Order No. 40 (Appendix A), the terms of which were agreed upon only after a majority of the commission had found themselves in agreement on the application of its terms to the existing stations. This order was issued on August 30, 1928. It represented a combination of the plans which had been suggested to the commission from time to time, together with certain concessions which had to be made to the practical necessities of the situation because of the existing number and character of the broadcasting stations. Forty channels were set apart for stations of sufficient power on cleared channels to give good service to rural and remote listeners. These channels were allocated equally, eight to each zone. This type of service corresponds to the type which was called "national" in the plans submitted to the

commission by expert engineers in April. Thirty-five channels were set aside for stations of power not to exceed 1,000 watts, to be allocated equally among the zones, each channel to be used—with certain exceptions—by not less than two nor more than three stations. Six channels were set aside for use in all five zones by stations of 100 watts or more; five channels were set aside for use in all five zones by stations having not to exceed 1,000 watts; four channels were set aside for use by stations of 5 kilowatts in two or more zones. By a supplementary General Order No. 42 the power of stations on the 40 declared channels was limited to 25 kilowatts, with provision for the use of 50 kilowatts during the next license period in order to determine what interference, if any, would result. Commissioner Robinson urged a limitation to 10 kilowatts.

A majority of the commission believe that this plan is the best which could be devised with due regard to existing conditions. It provides, or at least makes possible, excellent radio reception on 80 per cent of the channels. The few other channels will suffer from heterodyne interference except in a small areal close to each station.

334 The general orders were followed by an announcement of the specific assignments of stations with respect to frequency, power, and hours of operation. This new allocation arranged by States was announced on September 10, 1928, to go into effect on November 11 (Appendix G (1), and was revised on October 16 and 19 (Appendix G (*a* and *b*)). The intervening period was considered necessary in order to give the stations affected ample time to make such changes in apparatus and such tests as may be necessary to meet the new requirements. Provisions was made by General Order No. 45, issued on September 24, for tests on the new frequencies by all stations during the hours between shortly after midnight and morning. The original allocation (revised) is set forth in Appendixes G (1) and G (1 *a* and *b*), the former being a list of stations arranged by States showing their new and old assignments. The latest revised list setting forth the allocation by channels forms Appendix G (2). The announcement was accompanied by a statement explaining its effect and advising stations not satisfied with their assignments of the method for bringing their claims

to the attention of the commission. This statement is set forth in Appendix G (3).

The new allocation was analyzed by Dr. J. H. Dellinger, chief engineer of the commission, in a statement which is set forth in Appendix G (4).

As was to have been expected, there have been a number of complaints against the allocation on the part of particular stations and their adherents. On the whole, however, the complaints have been to date very much less in number than the commission expected. The commission intends to commence hearings on these complaints immediately after October 12, and, if possible, to conclude them prior to November 11. New licenses will be issued corresponding to the allocation and to any changes that may be made as the result of hearings. These licenses are to be effective as of November 11, to terminate on January 31, 1929.

An analysis of the quotas to which the respective States are entitled as to each of the classes of channels, if the Davis amendment is to be applied with mathematical precision, is set forth in Appendix G (5). A certain number of stations were accommodated in the new allocation on the basis of daytime and limited time assignments. General Order No. 41 was issued on September 4, 1928, defining daytime stations.

335 *Federal Radio Commission's Appendix.*

Designated by Appellee and Objected to by Appellant.

At a hearing before the Federal Radio Commission on July 23, 1928, involving the renewal of licenses of approximately 110 broadcasting stations, certain testimony was adduced by four highly-qualified electrical engineers all specialists in the field of radio engineering. A synopsis of this testimony is here set forth in order that the Court may be informed of the physical factors operative in the field of radio communication. The full testimony appears in document No. 119 of the Record.

Testimony of John V. L. Hogan (R. Doc. 119, pages 11-114).

The broadcasting sound by means of radio waves is a method of communication similar to other forms of com-

munication in that three components are required; a transmission system, a conveying medium, and a receiving system.

In radio communication, electro-magnetic forces act as the conveying medium. These forces travel in the form of waves and are generally referred to as "electro-magnetic waves." They have a uniform speed of 186,000 miles (299,820 kilometers) per second. These waves may be distinguished by their length and frequency, their length being inversely proportioned to their frequency. The product of the length of a particular wave expressed in meters and the frequency of that wave per second expressed in kilocycles is equal to the number 299,820. Thus a frequency of 1,000 kilocycles (1,000,000 cycles) per second produces waves 300 meters in length.

Radio Waves are Produced by an Alternating Electric Current.

All radio waves are the result of the flow of an electric current which alternates or oscillates. The frequency of alternation is usually expressed in terms of cycles per second. In radio communication, alternating currents are from 10,000 to 30,000,000 cycles per second and are used to produce these electro-magnetic waves.

336 Broadcasting, as the term is commonly used, requires the use of those waves having a frequency between 550,000 and 1,500,000 per second, which means that alternating currents of corresponding frequencies or cycles are necessary in the production of these waves.

Nature of Sound.

In order to understand the transmission of sound through the use of these waves, it is necessary to examine the physical characteristics of sound. The source of any sound is a body in a state of movement or vibration. The vibrations so produced are transmitted through a medium, usually the air, upon which is imposed this vibratory motion. A sound is "heard" when the auditory nerves are excited by these air vibrations or air waves.

Only air vibrations of certain frequency are audible to man. The extreme range is said to be from 16 to 16,000

vibrations per second and is variable with the individual. The lowest note produced by a piano has a vibration rate of 27 per second; the highest, a rate of 4,096 per second; middle C has a vibration rate of 256.

In most cases, a vibrating object has not only a fundamental vibration rate as in the instances given above, but also secondary vibration rates corresponding to multiples of the fundamental rate. An analysis of the note produced by middle C of the piano discloses vibration rates of 256 per second (the fundamental note) and vibrations of 516, 1,032, 2,064, etc. (the harmonics of the fundamental note). An analysis of vibration set up by the human voice discloses notes of many different vibration periods and in corresponding harmonics.

Problem of Radio Broadcasting.

The problem of radio broadcasting is to produce these air vibrations of audible frequency in an electrical form in order that they may be transmitted to distant points. Radio waves are not air waves but electrical forces and, hence, are not audible. In any event, they are not within the range of audibility, by reason of their extremely high vibration periods.

337 Air vibrations are reproduced in an electrical form by the following method: When a tuning fork, having the pitch of middle C, is set to vibrating, it impresses its vibrations (256 per second) upon the air. To these air waves the human ear is responsive and if these same air waves travel to the microphone of the broadcasting station, an electrical current is produced having the same frequency or period of vibration as the tuning fork. This electrical current is conveyed by wire from the microphone through amplifying tubes which increase the intensity of the current but do not change its frequency. The current finally emerges from the amplifying system as a very intense alternating current, retaining the initial frequency. It is referred to as the "audio frequency current." It is then imposed upon another alternating current of a very high frequency known as the "radio frequency current." The latter current has the capacity to produce a carrier wave which travels in all directions to great distances.

The union of the audio frequency current and the radio frequency current results in a modulated current retaining the characteristics of its components. As it flows through the antenna of the broadcasting station, it produces in space modulated electro-magnetic waves.

Characteristics of Electro-Magnetic Waves.

Although these waves are not tangible, they are genuine force competent to do a substantial amount of work. They travel in all directions with the speed of light. They do not affect the senses. They attentuate or become weaker as the distance from their source increases. They are subject to absorption and, as they travel through space, they are affected by many other factors. At any given point, their intensity may vary from hour to hour, sometimes from month to month, and, certainly, from night to night and from season to season. In general, it may be said that any condition of the earth or the earth's atmosphere that causes variability in their reflection, refraction or absorption, likewise causes variations in their intensity or strength at any given point.

338 Analysis of Modulated Waves.

An analysis of the modulated waves produced by middle C, as above described, shows the existence of waves of three different frequencies. Assuming that the carrier wave, produced by the radio frequency current, has a frequency of 100,000 cycles (1,000 kilocycles), the second and third waves will have frequencies of 100,256 and 99,744 as the result of the modulation. In other words, that frequency represented by the note transmitted is added to and subtracted from the frequency of the carrier wave, resulting in the presence of three waves above mentioned.

In the transmission of a musical program, it is necessary to use the carrier wave for the simultaneous transmission of many notes of given frequencies. The reproduction of an orchestra selection with absolute fidelity, may require the use of practically all the audible frequencies. The carrier wave so modulated would consist of approximately 32,000 frequencies, i. e., double the number of audible frequencies. A program of this nature will

still be heard with a remarkable degree of fidelity if the number of frequencies used is limited to 10,000. A band of frequencies of this number will permit the transmission of a large portion of the vibration within the range of audibility.

If any number of notes are simultaneously translated into electrical currents at the microphone, in the same manner as explained in the case of a note of 256 vibrations, the carrier wave is modulated by all the notes and becomes in reality a band of waves or a band of frequencies.

Only Certain Frequencies are Adaptable for Broadcasting.

In broadcasting, a band of frequencies of 10 kilocycles (10,000 cycles) is utilized. The necessity of using a band of this width or number for the purpose of securing a faithful reproduction of the program transmitted, automatically places a limit on the number of stations that may operate. Within the entire range of frequencies adaptable to radio communication, only a certain portion thereof is of practical use for broadcasting purposes. Those frequencies between 550,000 and 1,500,000 (550 to 1500 kilo-
339 cycles) are known as the broadcast band and are peculiarly adapted for the transmission and reception of program material.

Receiving sets responsive to the frequencies within this band may be designed and manufactured at a relatively small cost. It is difficult and expensive to design receiving apparatus having desirable selectivity and range for frequencies lower than 500 kilocycles. Frequencies higher than 1,500 kilocycles are subject to such great variation in intensity at any given point that reliable broadcasting service cannot be secured by their use.

The usual type of broadcast receiver is designed to accommodate all those waves in the broadcast band and select, from the entire band, those frequencies used by different stations. However, they are not adapted to the reception and selection of frequencies above or below the broadcast band.

Physical and economic factors thus limiting broadcasting to the frequencies between 550 and 1,500 kilocycles, the number of available channels within the band is likewise limited. The necessity of providing for each station an in-

dividual band of 10 kilocycles limits the broadcasting of programs to a total of 96 communicating channels.

The Highest Degree of Fidelity is Not Obtained Through the Use of a 10 Kilocycle Band.

As has been explained above, a 10 kilocycle separation between stations is not sufficient to provide programs of the highest degree of fidelity. The restriction to a band of 10 kilocycles being in fact a compromise with the ideal in order to obtain a maximum number of channels. If any change were to be made in the width of channels for the purpose of providing a better broadcasting service, it would necessarily have to be made by increasing the width and would result in fewer channels.

Number of Stations Limited by Reason of Heterodyne Interference.

In the present stage of development of the radio art, the transmitting apparatus of a broadcasting station is incapable of maintaining a constant frequency. The carrier waves of stations fluctuate in some cases to the extent of 1,000 to 2,000 cycles, although extreme constancy has been obtained by certain stations as evidenced by the
340 observations made by the Bureau of Standards. The carrier waves of many stations of both low and medium power vary in excess of 500 cycles.

This prevalent variation gives rise to a phenomenon known as interference. If two stations operate on the same channel and their carrier waves differ in frequency to the extent of 20 to 30 cycles or more, the interaction of their carrier waves within a receiving set tuned to their channel, create an audible note having a vibration period equal to the difference of the frequencies of the two waves. The intensity of the note depends upon the strength of the waves received. This note, being the result of several forces, is called a heterodyne or beat note and its presence is destructive to program reception. It will appear whenever the degree of separation of the two carrier waves represents a number within the range of audibility. A 10,000-cycle separation produces an audible note but, ordinarily, this is not noticeable to the average listener and causes no

discomfort or distortion of the program. For this reason, a 10-kilocycle separation between the carrier waves and two stations is a reasonable requirement in that it makes possible a maximum number of channels.

Elimination of Heterodyne Interference.

The entire elimination of this type of interference can only be accomplished as a practical proposition by (1) restricting the use of a channel to a single station, or (2) maintaining such a geographic separation between stations using the same channel that the carrier waves of two stations never enter the same territory with sufficient intensity to produce this interference.

Considering the existing equipment of broadcasting stations, the possibility of heterodyne interference must be taken into consideration in the assignment of power and location of two stations operating on the same frequency.

Service Area of Stations in Absence of Heterodyne Interference.

The area over which a broadcasting station gives dependable service is determined, in the first instance, by the power utilized, and, secondly, by the condition of
341 the earth's atmosphere. As has been explained, the service area of a station of a given power varies greatly from hour to hour, from night to night, and from season to season. The greatest variation probably occurs between daylight and darkness. Radio waves travel to much greater distance during the night than during the day. They are more constant during the fall and winter months than during the summer. Other factors influencing the service area may be enumerated as follows: Interference from static, interference from electrical apparatus and interference created by other stations.

By reason of the many factors involved, the definition of "service area" for any given station must be made very flexible. An approximation of the distance over which broadcasting stations will provide reliable service in the absence of interference from other stations operating on the same channel, may be given in relation to transmission conditions existing during the months in which radio is

most used, i. e., from September until March, and during the time of day when radio is most used, i. e., those hours immediately after darkness. It is possible to definitely measure the strength of any transmission at a given point, the unit of measurement universally adopted being a "field intensity unit".

On this basis, service to the listener may be classified into three types, corresponding to the intensity or strength of the transmissions or signals of a station over various areas.

A signal or transmission of 10 field intensity units is ordinarily capable of giving what is fairly called very good service, i. e., service which will satisfy the average city dweller who is located where noises produced by motors and other electrical apparatus must be overcome, in addition to the interference produced by other stations operating on adjacent frequencies.

A signal strength of two field intensity units gives good service within reasonable limits to the suburban dweller because, in his location, there is a lower level of interfering noises.

342 A signal of two-tenths of a field intensity unit gives fair service under rural conditions because of the absence of electrical interference. This service, however, is conditioned on the fact that static is absent.

As has been explained, the area over which a station will give the above described services depends upon the power of that station as well as the many other factors influencing the electro-magnetic waves after they leave the transmitting station. For the present purpose, the effect on the service area of two stations operating on the same channel is not considered.

The following figures indicate the average distances to which stations of given power may provide the three types of service mentioned above. A 50-watt station is competent to produce very good service at a distance of two miles or less. It will produce good service corresponding to two intensity units at a distance of ten miles or less, and it will produce rural service corresponding to two-tenths of a field intensity at 100 miles. (p. 34.)

A 500-watt station will produce very good service at a distance of six miles or less, good service at a distance of

thirty miles or less, and rural type of service at a distance of 300 miles or less. (p. 34.)

A 5,000-watt station will produce very good service over a zone having a radius of twenty miles, good service over a 100-mile radius, and rural service over 1,000 miles. (p. 34.)

A 50,000-watt station will give very good service over a distance of 60 miles or less, good service over 300 miles or less, and rural service over a distance of 3,000 miles. (p. 34.)

A 100-watt station will produce very good service at three miles, good service at fifteen miles, and rural service at 150 miles. (p. 35.)

A 1,000-watt station will produce very good service at nine miles, good service at 45 miles, and rural service at 450 miles.

Low intensities give satisfactory service only in the absence of electrical interference. The figures given above are approximations justified by observation and actual measurements. They are average values. A 500-
343 watt station, for example, will not produce service of the kind described over the distances indicated if it is in a poor location or if the character of the territory, over which its transmissions are sent, is unfavorable. Poor station design will restrict service area. Another 500-watt station, because of better location or better station design, may have a greater service area, than indicated by the above figures. Because the standards of listeners vary, these distances are also subject to variation from a standpoint of each individual. At the best, they are approximated averages giving an indication of what may be considered fair ranges for the several types of services mentioned. If one considers only the factors of power and distance on a theoretical basis, the above figures will be approximately one-half of the theoretical distances. Practical experience, however, makes it necessary to consider the addition of the other factors involved and by including these latter factors, a practical or empirical formula is obtainable.

Service Area Greatly Diminished by the Presence of Another Station.

Areas receiving the transmissions of two stations operating on the same channel, are termed "nuisance areas" whenever the degree of separation of the carrier waves of the two stations is great enough to produce the heterodyne interference, previously described. As has been stated, receiving sets in this area will react to both transmissions.

Nuisance Areas of Stations.

It is impossible to give a fixed nuisance area for a station of a given power applicable to all conditions, but it is possible, as a result of observation and measurement of many signal intensities, to conclude that under average winter-night conditions, one may expect to get severe heterodyne interference within a certain distance of a station of a given power. This interference range may be computed by comparing the field intensities of the two stations at different points. Wherever a station produces a signal having a value of more than seven-hundredths of a field intensity unit, heterodyne interference will result if the transmissions of another station operating on the same frequency enter this area.

344 During the average winter night, the nuisance radius of a 50-watt station is 300 miles; a 100-watt station, 450 miles; a 500-watt station, 900 miles; a 1,000-watt station, 1,350 miles; a 5,000-watt station, 3,000 miles; and a 50,000-watt station beyond the limits of the country. If heterodyne interference is to be avoided during the evening hours of winter, two stations can not be permitted to operate unless their geographical separation is such that the nuisance areas do not overlap.

From the above figures it is apparent that a 5,000-watt station has a nuisance area extending over the entire country. It is possible, however, to accommodate several stations of 1,000-watt capacity or less upon the same frequency or channel without causing appreciable heterodyne interference.

The heterodyne interference is proportional in any case to the product of intensities of the two carrier waves caus-

ing it. Without giving any absolute figure as to the radio of signal intensity that will produce a minimum heterodyne note, it is safe to say that the intensity of the interfering station should be less than one-thousandth and probably less than one-ten thousandth of the intensity of the station to which it is desired to listen. On this basis, the distances given above would product severe interference in the case of rural service; that is to say, the duplication of 50-watt stations 600 miles apart would materially reduce the service area of both stations by reason of the fact that the intensity of seven-hundredths of a field intensity unit is a very substantial proportion of the two-tenths field intensity unit providing such service.

It is apparent from the above that whenever stations are placed upon the same channel without sufficient geographic separation, the service range of each station is greatly reduced. However, there will be near each station a small area in which service may be had in spite of the interference from the distant station. This area will increase as the distance between the two stations is increased. The nearer two stations of the same frequency are placed geographically, the smaller will be the substantial interference free zone around each of these stations. It should be considered that these conditions apply to night
345 time operation and that during the day time stations may use the same frequency with relatively small geographical separation without causing this form of interference.

Full Service Range for Each Station Desirable.

An ideal broadcasting service for this country contemplates stations having their full service range or, at least, a substantial part of that service range. To attain this ideal situation, it is necessary that only one station of 1,000-watt power or greater be allowed to operate upon a given channel. 500-watt stations may be duplicated if they are kept about 1,800 miles apart, and under this arrangement it would be possible for three 500-watt stations to operate on each channel. 100-watt stations should be distributed 900 miles apart, permitting about seveen to the channel. This arrangement will give each station the full service range that is practical.

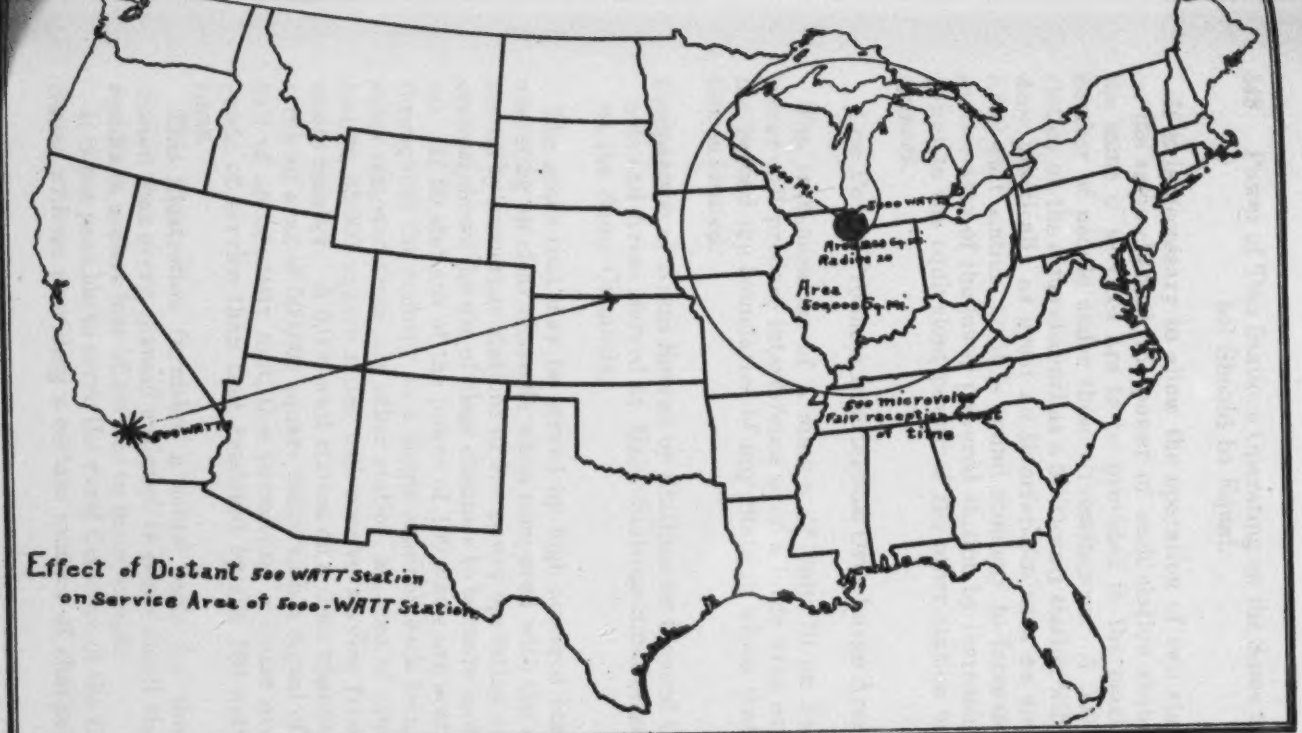
Compromising with the ideal in order to provide for a greater number of stations, it is possible to permit 1,000-watt stations to operate on the same channel if they are kept about 1,800 miles apart; 500-watt stations, 1,200 miles apart; and 100-watt stations, 600 miles apart.

A further increase in the number of stations results in a decrease in the service range of all stations. Such a reduction is in reality bad economy when it is considered that a facility is being wasted by reason of interference. An increase in the number of stations operating on a given channel reduces the service range of each station on that channel to such an extent that the combined service area of all stations is much less than the service area of a single station.

Effect of Heterodyne Interference on Service Area.

A striking illustration may be given of the effect of heterodyne interference by taking an example of the 5,000-watt station operating at Chicago on an interference-free channel and comparing its service area when so operating with its service area when another station of 500 watts is operated in Los Angeles, a distance of 2.000 miles. The transmissions of the 5,000-watt station on a clear channel will cover 400 miles with a signal strength of five-tenths of a field intensity unit at this distance. A signal strength
346 of this amount will give very satisfactory service in the rural districts. The same signal within a 100-mile radius of the station will be equal to two field intensity units. On this basis the people in an area of half-a-million square miles will receive satisfactory service from this station. If, however, a station of 500 watts is permitted to operate on the same frequency in Los Angeles, the interference created reduces the service area of the Chicago station to 1,260 square miles. If the station in Los Angeles is increased from 500 to 5,000-watt power, the service area of the Chicago station will be reduced to a 15-mile radius representing a service area of 750 square miles. The following chart illustrates the effect on service area of two stations, one of 5,000-watt power located at Chicago, the other of 500-watt power located at Los Angeles, as given in the foregoing statement.

(Here follows map, marked page 347)



Effect of Distant 500 WATT Station
on Service Area of 5000-WATT Station

No. 4870
General Electric Company,
Appellant
vs.
Federal Radio Commission

No. 4871
The People of the State of New York
Appellants
vs.
Federal Radio Commission

No. 4880
General Electric Company,
Appellant
vs.
Federal Radio Commission.

348 Power of Two Stations Operating on the Same Channel Should be Equal.

If it is necessary to allow the operation of two stations on the same channel, the power of each station should be the same if services are to be provided to the maximum number of people under these circumstances. A 500-watt station on the same channel as a 5,000-watt station will produce practically as great an interference area as another 5,000-watt station, so it is sound economy to increase the service area of the lower powered station by increasing its power to the equivalent power of the other station on the channel.

Low Power Produces Interference Over Large Areas.

The transmissions of a station of only 10 or 15-watt power will produce interference over a large area extending beyond the boundaries of any State in which that station is located.

Comparison of Areas Served by Stations on Cleared Channels and Areas Served by Many Stations Simultaneously on the Same Channels.

The areas that may be served by high-powered stations operating on clear channels when compared with the areas served by numerous stations of low power operating on one channel shows the use of clear channels to be more economical. If 50 stations of the power of 100 watts are scattered throughout the country on a single channel, each being 200 miles removed from any other station, an area of approximately 35,000 square miles will receive service from the entire number. A 5,000-watt station on a clear channel will serve an area of 500,000 square miles with a signal of one-half of an intensity unit, this permitting a better average grade of service than that rendered by the 100-watt stations.

This illustration furnishes a sound basis for the conclusion that every channel assigned to many small stations results in useless loss of service to many people.

It is not possible to serve the rural listeners of the United States without providing a certain number of channels for

stations of comparatively high power. Many wide areas, sparsely populated, can not be reached without the use of clear channels by stations having a power of 5,000 watts or more.

349 It is recognized that in order to provide local service and local programs demanded by the public, it is necessary to establish channels for stations of moderate power, namely, of 1,000, 500 and 100 watts and assign stations on these channels with proper regard for geographic separation in order to minimize interference.

Interference from Stations on Adjoining Channels.

Another type of interference must be taken into consideration in assigning frequencies to stations in the same state or city. This interference results by reason of deficiencies of existing radio sets. A radio receiver of the sort used by most listeners, when tuned to a certain station, will receive not only the signals of that station but also the signals of other stations operating on adjacent channels, if the intensity of the signals of the latter stations are sufficiently strong. This is due to the fact that receivers do not select only a band of 10 kilocycles but receive frequencies on either side of this band. This broad selection is necessary in order that all frequencies in the 10 kilocycle channel may be received with approximately equal intensity.

Cross Talk.

If a person is located half-way between two stations, at such a distance that both can ordinarily be heard, and one station is 10 kilocycles removed from the other, it is possible to hear either one at will. If the receiving set is nearer one station this latter station gives a much stronger signal, and certain amount of cross talk will be apparent, i. e., in pauses in the program of the station having the greatest signal strength at the particular point, the program of the station on the adjacent frequency will be heard with more or less distinctness. For this reason, two stations should not be permitted to operate in the same locality on adjoining frequencies.

If there is a separation of 20 kilocycles between stations, there is a very substantial ratio of signal intensities

through which the weaker stations can be tuned in. If the selectivity of a receiver is increased to a high degree in order to exclude other frequencies the quality of the program is destroyed because such a receiver will also eliminate the higher notes and many of the harmonics of other notes coming from the station to which it is tuned.

350 Due to characteristics of receivers a signal of low power will be heard over only a small portion of the dial while a signal of greater power will be heard over a corresponding greater portion of the dial. The strength of the signal that is being received affects receiver selectivity and, therefore, a more powerful signal appears over a larger portion of the dial than a weaker signal.

On cross examination this witness was asked how his formulas with respect to service areas and nuisance areas were derived and the following reply was made: "We have an empirical formula which is based upon work, first done by Hertz and which has since been conducted by many investigators, probably hundreds in number. It is not a theoretical formula but is a practical formula, which relates to observations that have been made over literally thousands upon thousands of measurements. It is based upon that, and it is the best general relation the engineers have been able to obtain. It does not purport to cover every case because of the variations that I have spoken about, but it does purport to be and is so far as I know the best relation which can be stated generally."

Testimony of Dr. J. H. Dellinger.

A synopsis of the testimony of Dr. J. H. Dellinger, for twenty-one years a physicist at the Bureau of Standards in the Department of Commerce and now Chief of the Radio Section of the Bureau of Standards, and Chief Engineer of the Federal Radio Commission, follow:

Doctor Dellinger testified that he was present while the testimony of John V. L. Hogan was being given; that the approximate figures given by Hogan with reference to signal strength of stations, the creation of nuisance areas, etc., are correct; that he had cooperated with Hogan in the calculation of these figures; that they apply to night time reception during the principal radio months of the year; and in all other cases the distances are not so great; that the

figures are conservative in that they give minimum distances, (pp. 108-110); that the comparative areas served by stations of various power as given by Hogan are correct. (p. 111)

351 The formulas relative to distances and signal intensity are operative under good conditions, i. e., at times when a signal goes out without material energy absorption. At all other times there is a great absorption and the distances reached by stations distant are less than the values given. (p. 113)

The results that would follow the operation of a 500-watt station at Los Angeles and a 5,000-watt station in Chicago using the same assigned frequency would be a heterodyne interference in the range of both stations of sufficiently great order that the interference produced thereby would be appreciable in a considerable part of the service area that each station would otherwise have if no other station were on the same frequency. There would be a considerable area around each station which would receive satisfactory service, such area being less than it would be if there were no heterodyne interference. There would be a greater area given actual service by one station than by both.

Smaller stations can furnish a service to a very restricted area around them, even though the same frequency is assigned to many other stations throughout the country. Unquestionably, there are numerous cases where their service over that small area is of value. The possibilities of furnishing such service without destructive interference were fairly clearly indicated in the engineers' report which has already been placed before the Commission.

If two stations of 5,000-watts each operate at the same time on the same channel, one in New York and one in Los Angeles, then a farmer in Nebraska with a good receiving set may at times hear one station, when its transmission comes in with sufficient intensity, if the signals of the other stations are absent because of different transmission conditions existing between the listener and the latter station. The heterodyne distance range of a station is about thirty times its service area if its service area is considered as that area covered by a signal intensity of two millivots per meter (two field intensity units).

352 The ratio of heterodyne interference distance to signal distance is not increased by an increase in

power if the stations responsible for the heterodyne are all increased by the same factor.

There appears to be no promising means of increasing service area other than increasing power or diminishing heterodyne interference unless it is possible to accompany this by the synchronization of stations or the delivery of more intense signals by improving the modulation. (p. 134)

A greater area is served by one 50,000-watt station than by the aggregate number of small stations with the same total power. (p. 137)

353 *Testimony of C. M. Jansky, Jr.*

This witness is Associate Professor of Radio Engineering of the University of Minnesota and a Consulting Engineer, having acted in the latter capacity for such organizations as the U. S. Bureau of Standards, the U. S. Signal Corps, the Geophysical Researche Corporation, and others.

The witness states that he was present during the time the testimony of the witness Hogan was being given and that the testimony as to the approximate extent of various types of service areas and nuisance areas with reference to stations of different amounts of power, were the results of calculations in which he had cooperated, and which are correct as approximations.

The width of a channel occupied by radio broadcasting stations is definitely determined by the highest modulated frequency present in the program being broadcast, assuming that the transmitter is designed to handle this frequency. The range of frequencies necessary in order that there may be a faithful reproduction of a program depends upon the range of frequencies to which the ear will respond and this varies with individuals but may be said to extend from 30 cycles per second to possibly some figure well above 10,000 cycles.

Transmission systems designed for the reproduction of high grade musical programs should be designed to accommodate modulating frequencies of at least 8,000 cycles. Broadcasting stations so designed would occupy channels 16,000 cycles wide. On this basis there would be approximately 60 channels available between 550 and 1,500 kilocycles. It has been found, however, that limiting the transmission system to modulating frequencies which do not

exceed 5,000 cycles is a workable arrangement although it does not provide for as faithful reproduction as would be desirable. If broadcasting stations are so designed that only frequencies below 5,000 cycles are transmitted then the width *of* occupied by each station will be 10,000 cycles and the frequency channel separation between carriers could be made 10,000 cycles.

354 On the basis of a 10,000-cycle separation between carrier frequencies there are 96 broadcast channels available between 550 and 1,500 kilocycles assuming the terminal frequencies to be used as carriers.

Based on studies made by witness in mid-western States, namely, North Dakota, South Dakota, and Minnesota, approximately 60 percent of the receiving sets in this area are outside the daylight service area of broadcasting stations. This means that the owners of these sets will rely entirely upon the night-time programs and that these are obtainable from stations several hundred to a thousand miles distant.

Under these conditions the assignment of several stations on the same channel for simultaneous operation is likely to completely destroy for 60 percent of the population mentioned above the benefits of broadcasting service, this being due to the heterodyne interference caused by the operation of the two stations. So far the physical limitations which do not permit the existence at one location of stations using adjacent frequencies are fundamentally due to the characteristics of the radio receiving sets as they are built today. These sets are particularly sensitive to the frequencies for which they are tuned. Thus a set tuned to the frequency of 990 kilocycles receives a signal of that frequency at its maximum strength. For frequencies on either side the sensitivity of the receiver falls off rapidly. Since broadcasting programs require the reception of a band of 10,000 frequencies (10 kilocycles), it is apparent that a very selective set will not respond with the same sensitiveness to all the frequencies in this band. This fact is shown graphically by the middle figure of the following chart.

355 In order to secure a faithful reproduction of the progress, it is, therefore, necessary to broaden the set, the effect of this being to admit all those frequencies

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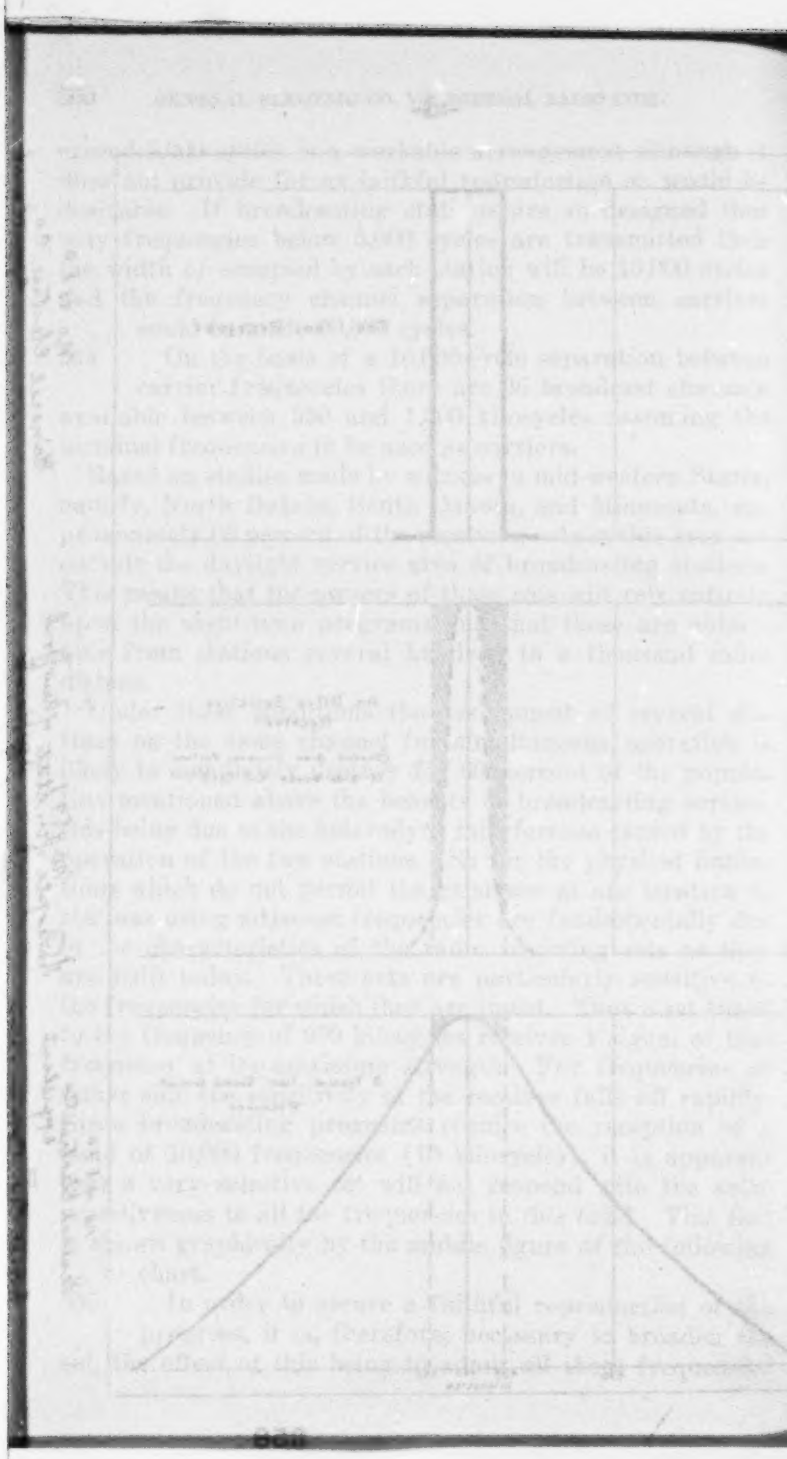
Atlantic Gen. Hosp. of New York
Appellants
vs
Federal Radio Commission

No. 4170
General Electric Co
Appellant
vs
Federal Radio Commission



in the ten-kilocycle band above referred to, without appreciable loss of power. The effect of thus broadening the receiving set leads to undesirable results for the reason that transmissions of stations occupying adjacent channels are admitted. These transmissions on either side of the particular band to which the receiver is tuned may have sufficient strength to completely destroy the signal of the station to which the receiver is tuned. (See bottom figure in chart indicating reception of transmissions 10 kilocycles removed from frequency desired.)

As is shown by the top figure on the chart the ideal receiver excludes all frequencies except those within the ten-kilocycle band and admits all frequencies within that band with equal intensity.

(Here follows diagram, marked page 356.)

357 The location of a station in a city, even though it may not be powerful, is bound to produce a relatively high field intensity close to it. This field intensity will produce interference with receiving sets which are tuned to channels adjacent to that of the interfering station. The distance of the transmitter from the receiving set is a more important factor in determining field intensity than power; and listeners in a city will receive interference when operating their receiving sets on adjacent channels to a greater extent than they would if the stations were not high-powered and located outside the city. A station will produce excessively strong signals in its immediate vicinity even though it may be of relatively low power. These signals are objectionable to listeners near the station for the reasons given above.

The following chart represents the field intensities of two stations, one located in the center of Chicago and the other located approximately thirty miles distant. The station thirty miles distant operates on a power of 25,000 watts, this producing a field intensity of approximately ten millivolts per meter (ten field intensity units) over the Chicago area represented in the chart, the area of cross-hatching indicating the even distribution of this power.

The area covered by diagonal lines represents the intensity of the signals of the 1,000 watt station located in the

heart of Chicago and shows this intensity to be 250 millivolts per meter (250 field intensity units) in the area immediately surrounding the station. This intensity diminishes within a radius of two miles to approximately ten millivolts per meter (ten field intensity units). That portion of the area of Chicago receiving the signals of the 1,000-watt station at high intensity, is unable to utilize those channels adjacent to the channel upon which the 1,000-watt station is operating, by reason of the fact that the receivers respond to the high intensity signals over a large portion of the dial. Where the intensity being received is approximately ten field intensity units or less this is not the case and stations operating on adjacent channels will not be blanketed.

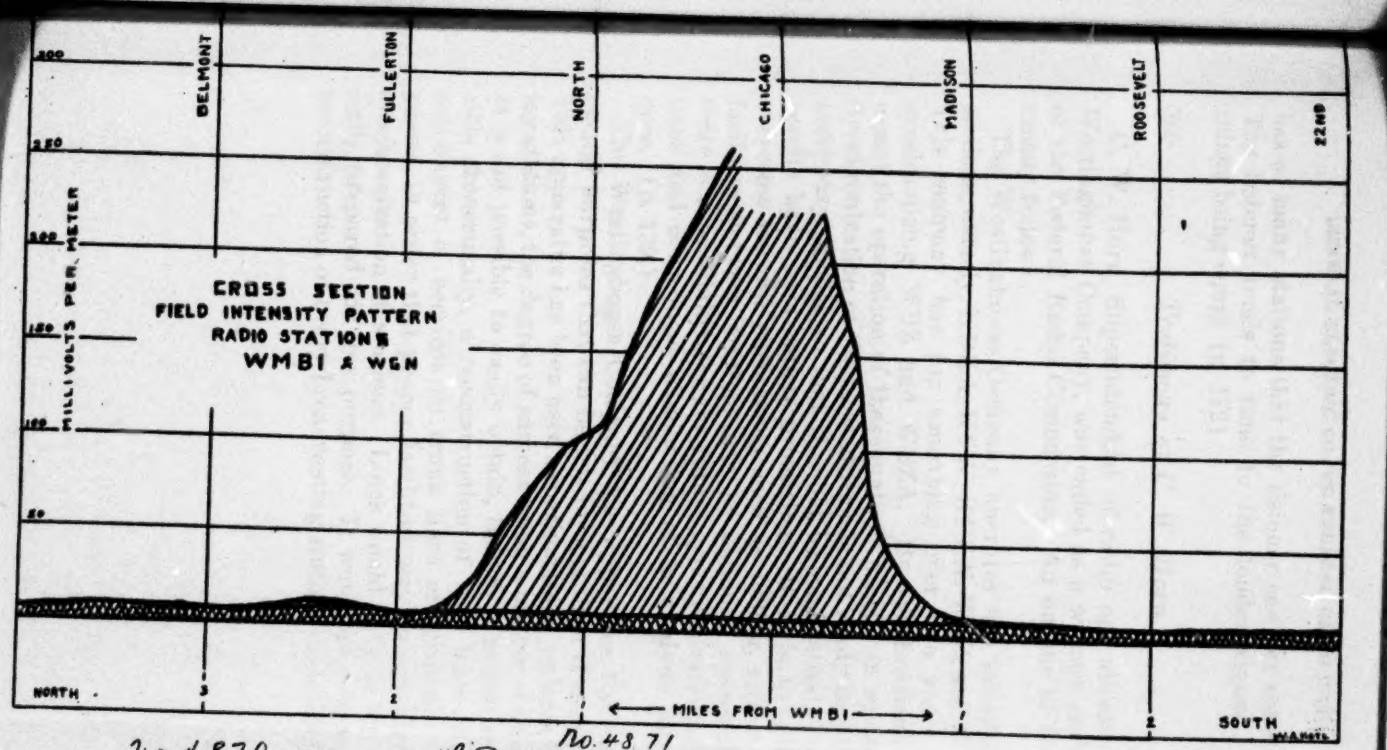
(Here follows diagram, marked page 358.)

359 Many persons in many localities throughout the middle west who listen to stations on the Atlantic Coast and in the southern part of the United States and to a limited extent to stations on the Pacific Coast, have their enjoyment of a program seriously impaired by heterodyne interference. Where two stations are on one frequency and heterodyne interference is caused, this interference only destroys reception on the one frequency.

Assuming that there are thirty-five broadcasting stations with a power of from 15,000 to 50,000 watts, scattered over the United States, a listener in the United States with the average five-tube receiving set, located at the greatest possible distance from any one of the thirty-five stations, on a particular night might be able to hear from 15 to 20 stations. Averaged over a number of nights for a two weeks' period, he would probable be able to hear the most of them. (167-168)

The phenomena of fading does not have a great deal to do with the number of stations which can be put on a particular channel. (p. 169)

The entire problem of serving the rural listener, who is removed from broadcasting stations by a considerable distance is a tremendous one and it is never satisfactory. One of the reasons why people in the vicinity of New York tune in only on local stations, is the fact that New York



No. 4870
General Electric Co
Appellant
vs
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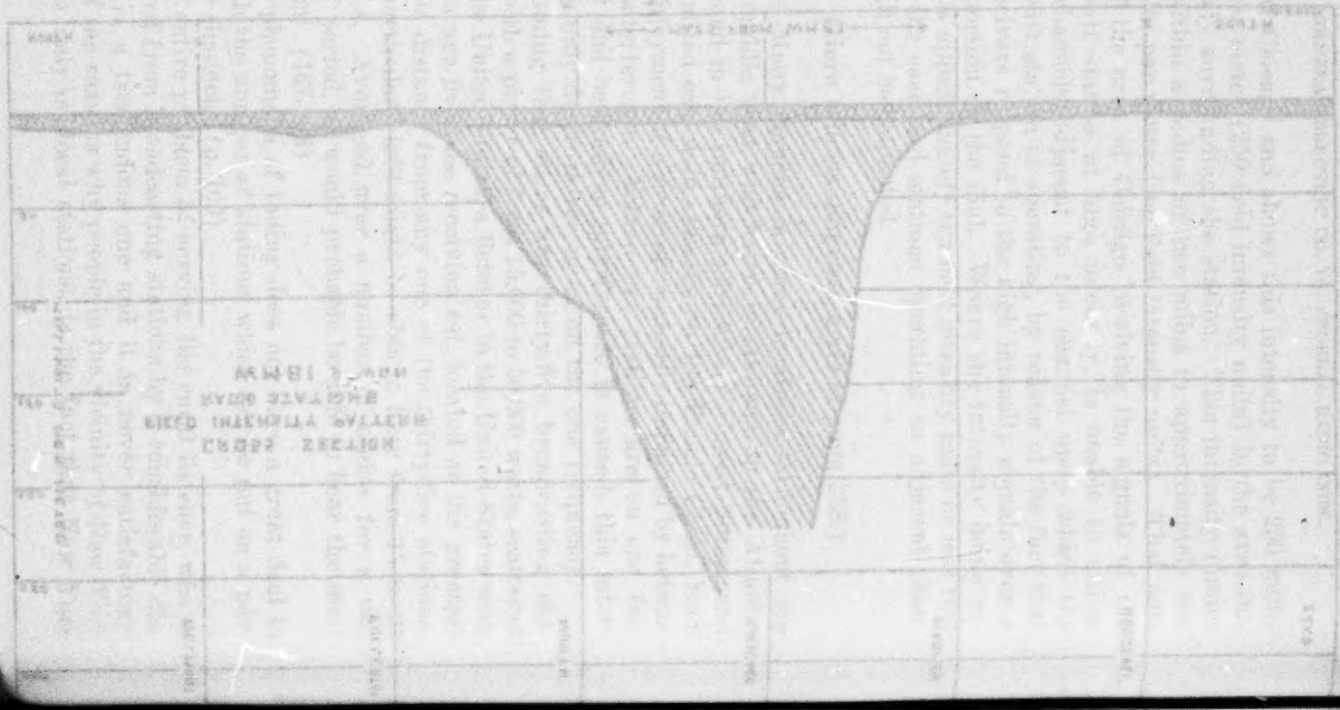
No. 4871
The People of the State of New York
Appellants
vs
Federal Radio Commission

and No. 4880
General Electric Co Appellee
vs
Federal Radio Commission



has so many stations that the listener can get none other. The listener tends to tune to the louder signals, other things being equal. (p. 172)

360 *Testimony of C. W. Horn.*

C. W. Horn, Superintendent of radio operations of the Westinghouse Company, was called as a witness on behalf of the Federal Radio Commission. An outline of his testimony follows:

The Westinghouse Company operates five broadcasting stations, namely, KDKA, KYW, KFKX, WBZ, and WBZA. This company has for something over two years been synchronizing WBZ and WBZA. By synchronization is meant the operation of these stations exactly in resonance. Synchronization at the present time is not ready to put into every day service so that it could be guaranteed, but the results have been rather promising. If it is possible to overcome natural phenomena such as fading, and if wire facilities between stations can be obtained economically, there is a possibility for the future synchronization of stations and consequent elimination of heterodyne interference. (p. 139.)

The Westinghouse Company has apparatus for experimental purposes that can be put in operation if necessary. This apparatus has been used experimentally on broadcasting stations, the degree of success being a matter of opinion. It is not possible to easily obtain, though it might be possible theoretically, a reconstruction of wire lines and reassignment of services on trunk lines of telephone companies, in order that proper facilities may be provided for synchronization of stations. Lines would have to be especially prepared for this purpose. It would also mean the reconstruction of every broadcasting station. (pp. 139-142.)

361 In the Court of Appeals of the District of Columbia.

No. 4870.

GENERAL ELECTRIC COMPANY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Dismiss Appeal of General Electric Company, Appellant.

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding, and moves that the said appeal be dismissed. The appellee assigns the following grounds in support of said motion:

1. This, the Court of Appeals of the District of Columbia, has no jurisdiction to hear or entertain said appeal because the appellant did not file with said Court notice in writing of said appeal and of the reasons therefor within twenty days after the decision complained of was effective, as required by Section 16 of the Radio Act of 1927.

2. This Court has no jurisdiction to hear or entertain said appeal because the appellant did not serve a certified copy of said appeal and of the reasons therefor within twenty days after the decision complained of was effective.

3. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal" filed by the appellant herein, what decision of the Federal Radio Commission is complained of, nor does the nature of such decision appear.

362 4. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, what decision of the Federal Radio Commissoin is complained of, nor does the nature of such decision appear.

5. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal," filed by the appellant herein, that the decision complained of was either a re-

fusal of an application for a construction permit, or a refusal of an application for a station license, or a refusal of an application for the renewal of an existing station license, or a refusal of an application for modification of an existing station license, or a revocation of license, as required by Section 16 of the Radio Act of 1927.

6. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, that the decision complained of was either a refusal of an application for a construction permit, or a refusal of an application for a station license, or a refusal of an appliction for the renewal of an existing station license, or a refusal of an application for modification of an existing station license, or a revocation of license, as required by Section 16 of the Radio Act of 1927.

7. This Court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, said appeal is in reality from rules and regulations of the Commission contained in General Order No. 40 of the Commission, dated August 30, 1928, and effective October 1, 1928. Under Section 16 of the Radio Act of 1927, no appeal can be taken to this
363 Court from a rule or regulation of the Commission and furthermore, the appeal in the instant case was not taken within twenty days after the decision of the Commission adopting said rules and regulations became effective.

8. This Court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, if the appeal be construed as being from the decision of the Commission on October 12, 1928, denying the appellant's application for modification of license dated October 4, 1928, the said application is by its own terms improper, defective, and in violation of the rules and regulations of the Commission, and in particular of Sub-paragraph A of Paragraph 4 of the Commission's General Order No. 40, and the Commission had no alternative but to deny it. The Commission is required to grant

hearings under Section 11, and appeals may be taken by applicants whose applications are refused, under Section 16, only when the issue of whether the granting of an application would serve public interest, convenience or necessity is raised by such application.

9. This Court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, the appellant by filing a second application for modification of license dated November 3, 1928 (which application is now pending before the Commission and has not been acted upon) has waived any right to question, complain of, or appeal from, the decision of the Commission on October 12, 1928.

364 10. This Court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, the supposed decision complained of was on a matter which was not at the time covered by any application filed by the appellant, and as to which no decision has ever been rendered by the Commission; that the matter is covered only by applications filed by the appellant since the date of said supposed decision, which applications have not yet been passed upon by the Commission.

11. The appeal should be dismissed because, as appears from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, the appellant is attempting to bring into question in this Court, for review and determination, the Commission's action or non-action in at least five separate and legally unrelated matters which cannot be joined in one appeal.

12. The appeal should be dismissed because the supposed "notice in writing of said appeal of the reasons therefor," filed by the appellantt herein, is improper, in form and in violation of the requirement of Section 16 of the Radio Act of 1927, in that, in addition to the defects above noted it consists chiefly of supposed evidence and argument which have no place therein.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
Its General Counsel.

365 *Notice to Appellant.*

Frank J. Hogan, Esq.,.
Attorney for Appellant,
Colorado Building,
Washington, D. C.

Please take notice that the foregoing motion is today being filed in the Court of Appeals of the District of Columbia, in the above entitled cause; and that on December 3, 1928, at the opening of the Court and as soon thereafter as counsel may be heard, we shall move the said Court of Appeals for an Order in accordance with said motion.

LOUIS G. CALDWELL,
General Counsel Federal Radio Commission, Appellee.

Washington, D. C., November 27, 1928.

Acknowledgment of Service.

Service of a copy of the foregoing motion and of the notice attached thereto is acknowledged this 27 day of November, 1928.

FRANK J. HOGAN,
By JOHN W. GUIDER,
Attorney General Electric Company, Appellant.

366 [Endorsed:] 4870. Court of Appeals of the District of Columbia. The General Electric Company, Appellant, v. Federal Radio Commission, Appellee. Ct. 12-1-28. Motion to Dismiss Appeal. Louis G. Caldwell, General Counsel, Federal Radio Commission. Court of Appeals District of Columbia Filed Nov. 27, 1928. Henry W. Hodges, clerk.

367 In the Court of Appeals of the District of Columbia.

No. 4870.

GENERAL ELECTRIC COMPANY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Strike Appellant's "Notice of Appeal and Reasons Therefor" and the Several Portions Thereof.

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding and, saving and reserving to itself all its rights with respect to its motion to dismiss said appeal now pending before this Court, move as follows:

1. That the document filed by appellant herein entitled "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor," be stricken from the files.

2. That so much of said document as follows the heading "Reasons for Appeal" together with the so-called certificate, acknowledgment of service, verification, notice to the Federal Radio Commission and all other documents including all exhibits be stricken.

3. That all of said document following the heading "Reasons for Appeal," except the first three paragraphs thereof, the verification of Stephen H. Philbin and all papers including exhibits attached to said document be stricken.

4. That the verification of Stephen H. Philbin and all papers including exhibits attached to said "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor," be stricken.

368 5. That of the portion of the document following the heading "Reasons for Appeal" all of the matter following respective numbers 1 and 2 therein, be stricken.

6. That all part of the document following the heading "Reasons for Appeal,, that are evidentiary in nature as distinguished from what is required by Section 16 of the Radio Act of 1927, be stricken, including the second sentence following the numeral 4 and simular language.

7. That so much of said document following the heading "Reasons for Appeal" as is concerned with the appellant's

application for renewal of license dated January 14, 1928, and the action of the Commission thereon, be stricken.

8. That so much of said document following the heading "Reasons for Appeal" as is concerned with the applicant's application for renewal dated October 23, 1928, and its application for modification dated November 3, 1928, and all exhibits with reference to either of said applications, be stricken.

The appellee assigns the following grounds in support of said motion:

1. All the grounds recited in appellee's motion to dismiss the appeal herein, now on file in this Court, are hereby incorporated herein and made a part hereof by reference.

2. Appellant's supposed "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor" is, and in particular the portions above specified, are in the nature of evidence and do not constitute matters such as is required to be filed by appellant by Section 16 of the Radio Act of 1927; such matter may be adduced by appellant only upon a verified petition for leave to adduce additional evidence, the petition to state the nature and character of such additional evidence.

369 3. The said document filed by appellant, and the respective portions thereof, set forth and have to do with actions or alleged failures to act on the part of the appellee, which cannot be the basis for appeal.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
Its General Counsel.

370 *Notice to Appellant.*

Frank J. Hogan, Esq.,
Attorney for Appellant,
Colorado Building,
Washington, D. C.:

Please take notice that the foregoing motion is today being filed in the Court of Appeals of the District of Columbia, in the above entitled cause; and that on December 3, 1928, at the opening of the Court and as soon thereafter as

counsel may be heard, we shall move the said Court of Appeals for an Order in accordance with said motion.

LOUIS G. CALDWELL,
General Counsel Federal Radio Commission, Appellee.

Washington, D. C., November 27, 1928.

Acknowledgement of Service.

Service of a copy of the foregoing motion and of the notice attached thereto is acknowledged this 27 day of November, 1928.

FRANK J. HOGAN,
By JOHN W. GUIDER,
Attorney General Electric Company, Appellant.

371 [Endorsed:] 4870. Court of Appeals of the District of Columbia. The General Electric Company, Appellant, v. Federal Radio Commission, Appellee. 12-1-28. Motion to Strike Notice of Appeal, etc. Louis G. Caldwell, General Counsel, Federal Radio Commission. Court of Appeals, District of Columbia. Filed Nov. 27, 1928. Henry W. Hodges, clerk.

(4870)

372 In the Court of Appeals of the District of Columbia.

No. 4870.

GENERAL ELECTRIC COMPANY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Vacate Order Entered Herein on November 9, 1928.

Now comes the Federal Radio Commission, appellee in in the above-entitled proceeding and, saving and reserving to itself all its rights with respect to its motion to dismiss said appeal now pending before this Court, moves that the order entered herein on November 9, 1928, be set aside

and vacated. The appellee assigns the following grounds in support of said motion.

1. This, the Court of Appeals of the District of Columbia, has no jurisdiction to hear or entertain said appeal.

2. The supposed "notice in writing of said appeal and of the reasons therefor," does not disclose any decision of the Commission which is susceptible or subject to an order of stay or of supersedeas or of any other remedial prerogative writ in aid of appellate jurisdiction which this Court has power to issue.

3. The order of this Court entered herein on November 9, 1928, is in effect the granting by the Court to the appellant of a license to use and operate an apparatus for the transmission of communications by radio in interstate and foreign commerce, although under the Radio Act of 1927, such a license must be obtained from the appellee, and although the appellee has granted to said appellant
a license having terms and conditions other than
373 those authorized by said order of this Court.

4. Decisions of the appellee refusing to grant an application for a construction permit, or refusing to grant an application for a station license, or refusing to grant an application for the renewal of an existing station license, or refusing to grant an application for the modification of an existing station license are not, and none of them is, susceptible or subject to an order of stay, or of supersedeas, or of any other prerogative writ in aid of appellate jurisdiction which this Court has power to issue.

5. The said order of November 9, 1928, deprives a large portion of the radio listening public, and particularly that portion residing in the Fifth Zone, of radio broadcasting service to which it is entitled.

6. As disclosed by said "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, the rights of the appellant are too doubtful, uncertain and unlikely to be upheld by this Court, to justify said order of November 9, 1928.

7. The said order of November 9, 1928, was entered as the result of a motion by appellant in violation of the rules of this Court, in that (a) said motion was not in writing and (b) no notice thereof, written or otherwise, was

ever served upon appellee until about one and one-half hours prior to the time at which said motion was used.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
Its General Counsel.

374 *Notice to Appellant.*

Frank J. Hogan, Esq.,
Attorney for Appellant,
Colorado Building,
Washington, D. C.:

Please take notice that the foregoing motion is today being filed in the Court of Appeals of the District of Columbia, in the above entitled cause; and that on December 3, 1928, at the opening of the Court and as soon thereafter as counsel may be heard, we shall move the said Court of Appeals for an Order in accordance with said motion.

LOUIS G. CALDWELL,
General Counsel Federal Radio Commission, Appellee.

Washington, D. C., November 27, 1928.

Acknowledgment of Service.

Service of a copy of the foregoing motion and of the notice attached thereto is acknowledged this 27 day of November, 1928.

FRANK J. HOGAN,
By JOHN W. GUIDER,
Attorney General Electric Company, Appellant.

375 [Endorsed:] 4870. Court of Appeals of the District of Columbia. The General Electric Company, Appellant, v. Federal Radio Commission, Appellee. Motion to vacate stay order. Louis G. Caldwell, General Counsel Federal Radio Commission. Court of Appeals, District of Columbia. Filed Nov. 27, 1928. Henry W. Hodges, clerk.

376 In the Court of Appeals of the District of Columbia.

No. 4880.

GENERAL ELECTRIC COMPANY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Dismiss Appeal or General Electric Company, Appellant.

Notice to Frank J. Hogan, Esq., attorney for General Electric Company, Appellant:

Please take notice that on Wednesday, December 19, 1928, at the hour of 10 o'clock A. M. or as soon thereafter as counsel may be heard, I shall appear before the Court of Appeals of the District of Columbia, in behalf of the appellee and in support of appellee's motion herein.

—— ——,

Attorney for the Federal Radio Commission, Appellee.

Acknowledgment of Service.

Receipt of a copy of the foregoing written notice and motion, is acknowledged this 17th day of December, 1928.

FRANK J. HOGAN,
J. W. G.,
Attorney for General Electric Company, Appellant.

377 [Endorsed:] 4880. In the Court of Appeals of the District of Columbia. No. 4880. General Electric Company, Appellant, v. Federal Radio Commission, Appellee. Notice. —— ——, Attorney for the Federal Radio Commission, Appellee. Court of Appeals, District of Columbia. Filed Dec. 17, 1928. Henry W. Hodges, clerk.

378 In the Court of Appeals of the District of Columbia.

4880.

GENERAL ELECTRIC COMPANY, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Strike Appellant's "Notice of Appeal and Reasons Therefor" and the Several Portions Thereof.

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding and, saving and reserving to itself all its rights with respect to its motion to dismiss said appeal now pending before this Court, moves as follows:

1. That the document filed by appellant herein entitled "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor," be stricken from the files.

2. That so much of said document as follows the heading "Reasons for Appeal" together with the so-called certificate, acknowledgement of service, verification, and notice to the Federal Radio Commission be stricken.

3. That all of said document following the heading "Reasons for Appeal," except the first three paragraphs thereof, the verification of Frank J. Hogan and all papers including exhibits incorporated in said document by reference be stricken.

4. That the verification of Frank J. Hogan and all papers including exhibits incorporated by reference in said "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor," be stricken.

379 5. That all parts of the document following the heading "Reasons for Appeal" that are evidentiary in nature as distinguished from what is required by Section 16 of the Radio Act of 1927, be stricken.

6. That so much of said document following the heading "Reasons for Appeal" as is concerned with the appellant's application for renewal of license dated January 14, 1928, and the action of the Commission thereon, be stricken.

7. That so much of said document following the heading "Reasons for Appeal" as is concerned with the applicant's application for renewal dated October 23, 1928, and its application for modification dated November 3, 1928, and all exhibits with reference to either of said applications, be stricken.

The appellee assigns the following grounds in support of said motion:

1. All the grounds recited in appellee's motion to dismiss the appeal herein, now on file in this Court, are hereby incorporated herein and made a part hereof by reference.

2. Appellant's supposed "Notice of Appeal to the Court of Appeals of the District of Columbia and Reasons Therefor" is and in particular the portions above specified, are in the nature of evidence and do not constitute matters such as is required to be filed by appellant by Section 16 of the Radio Act of 1927; such matter may be adduced by appellant only upon a verified petition for leave to adduce evidence, the petition to state the nature and character of such additional evidence.

3. The said document filed by appellant, and the respective portions thereof, set forth and have to do with action or alleged failure to act on the part of the appellee,
380 which cannot be the basis for appeal.

FEDERAL RADIO COMMISSION,
By —— ——,
Its General Counsel.

381 [Endorsed:] 4880. In the Court of Appeals of Columbia. No. 4880. General Electric Company, Appellant, v. Federal Radio Commission, Appellee, Motion to Strike Appellant's "Notice of Appeal and Reasons Therefor and the several Portions Thereof. Louis G. Caldwell, General Counsel, Federal Radio Commission. Court of Appeals, District of Columbia. Filed Dec. 17, 1928. Henry W. Hodges, clerk.

382 In the Court of Appeals of the District of Columbia.

No. 4871.

THE PEOPLE OF THE STATE OF NEW YORK, Appellant,

v.

FEDERAL RADIO COMMISSION, Appellee.

Motion to Dismiss Appeal of the People of the State of New York, Appellant.

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding, and moves that the said appeal be dismissed. The appellee assigns the following grounds in support of said motion:

1. This, the Court of Appeals of the District of Columbia, has no jurisdiction to hear or entertain said appeal because, as appears from the "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, said appeal is from a supposed decision or determination of the Federal Radio Commission "In the matter of the application of General Electric Company for modification of license issued to Station WGY, Schenectady, New York." The appellant has no such interest in such supposed decision or determination as to entitle appellant to appeal to this Court, is not given any right to appeal under the Radio Act of 1927 as amended, and does not come within the description of persons entitled to appeal contained in Section 16 of that Act.

2. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, what decision of the Federal Radio Commission is complained of, nor does the nature of such decision appear.

383 3. This Court has no jurisdiction to hear or entertain said appeal because it does not appear from the supposed "notice in writing of said appeal and of the reasons therefor," filed by the appellant herein, that the decision complained of was either a refusal of an application for a construction permit, or refusal of an application for

a station license, or a refusal of an application for the renewal of an existing station license, or a revocation of license, as required by Section 16 of the Radio Act of 1927.

4. This Court has no jurisdiction to hear or entertain said appeal because a "license issued" by the Commission is not a decision of the Commission from which an appeal can be taken to this Court under Section 16 of the Radio Act of 1927.

FEDERAL RADIO COMMISSION,
By LOUIS G. CLADWELL,
Its General Counsel.

384 *Notice to Appellant.*

Henry S. Manley, Esq.,
Attorney for Appellant, People of the State of New York,
Albany, N. Y.:

Please take notice that the foregoing motion is today being filed in the Court of Appeals of the District of Columbia, in the above entitled cause; and that on December 3, 1928, at the opening of the Court and as soon thereafter as counsel may be heard, we shall move the said Court of Appeals for an Order in accordance with said motion.

LOUIS G. CALDWELL,
General Counsel Federal Radio Commission, Appellee.

Washington, D. C., November 27, 1928.

Affidavit of Service.

Louis G. Caldwell, being first duly sworn on oath, says and deposes that he is General Counsel for the Federal Radio Commission, Appellee herein, and that he served a copy of the foregoing motion and of the notice attached thereto on Appellant, The People of the State of New York, by mailing the said copy of motion and notice, by registered mail, on November 27th, 1928, addressed to Henry S. Manley, Attorney for said Appellant, in the care of the Attorney General of the State of New York, at Albany, N. Y.

LOUIS G. CALDWELL.

Subscribed and sworn to before me this 27 day of November, 1928.

MAGDALENA GALE,
Notary Public, District of Columbia.

385 [Endorsed:] 4871. Court of Appeals of the District of Columbia. No. 4871. Postponed till hearing on merits. The People of the State of New York, appellant, v. Federal Radio Commission, appellee. Motion to Dismiss Appeal. Louis G. Caldwell, General Counsel, Federal Radio Commission. Court of Appeals, District of Columbia. Filed Nov. 27, 1928. Henry W. Hodges, clerk.

Endorsed on cover: Federal Radio Commission. No. 4870. General Electric Co., appellant, vs. Federal Radio Commission, and No. 4871. The People of the State of New York, appellants, vs. Federal Radio Commission. Court of Appeals, District of Columbia. Filed Nov. 9, 1928. Henry W. Hodges, clerk. And No. 4880. General Electric Co., appellant, vs. Federal Radio Commission. Court of Appeals, District of Columbia. Filed Nov. 30, 1928. Henry W. Hodges, clerk.

379 In Court of Appeals of the District of Columbia

No. 4880

GENERAL ELECTRIC COMPANY, APPELLANT

v.

FEDERAL RADIO COMMISSION, APPELLEE

Motion to dismiss appeal of General Electric Company, appellant

Filed December 17, 1928

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding, and moves that the said appeal be dismissed. The appellee assigns the following grounds in support of said motion:

1. This, the Court of Appeals of the District of Columbia, has no jurisdiction to hear or entertain said appeal because the appellant did not file with said court notice in writing of said appeal and of the reasons therefor within twenty days after the decision complained of was effective, as required by section 16 of the radio act of 1927.

2. This court has no jurisdiction to hear or entertain said appeal because the appellant did not serve a certified copy of said appeal and the reasons therefor within twenty days after the decision complained of was effective.

3. This court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and the reasons therefor," filed by the appellant herein, the supposed decision complained of was not a refusal of any application filed by the appellant, within the meaning of section 16 of the radio act, 1927.

380 4. This court has no jurisdiction to hear or entertain said appeal because, as appears from the supposed "notice in writing of said appeal and the reasons therefor," the decision upon which appellant bases its appeal is not an appealable decision within the purview of section 16 of the radio act, 1927.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
Its General Counsel.

[File indorsement omitted.]

* * * * * * *

381 In Court of Appeals of District of Columbia

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4870, October term, 192

AND

PEOPLE OF THE STATE OF NEW YORK, appellants
vs.
FEDERAL RADIO COMMISSION
No. 4871, October term, 192

Order granting stay

The motion for a stay of proceedings pending the determination o the appeals in the above-entitled causes was submitted to the consid eration of the court by Messrs. S. H. Philbin, Frank J. Hogan, an Henry S. Manley, of counsel for appellants, in support of motion, an by Mr. Frank D. Scott, attorney for the appellee, in oppositio thereto.

On consideration whereof, it is by the court this day ordered tha a stay be, and the same is hereby, granted, and that until the furthe order of the court Radio Station WGY of the applicant-appellan be, and it is hereby, permitted to operate full time on channel 79 kilocycles.

Per Mr. CHIEF JUSTICE MARTIN.

NOVEMBER 9, 1928.

382 In Court of Appeals of District of Columbia

Monday, December 3rd, A. D. 1928

* * * * * * *

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4870

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4880

AND

THE PEOPLE OF THE STATE OF NEW YORK, appellants
vs.
FEDERAL RADIO COMMISSION
No. 4871

Minute entry

The motions to strike, to vacate the stay order, and to dismiss Nos. 4870 and 4871 were argued by Messrs. Louis G. Caldwell an

B. M. Webster, jr., in support of motions, and by Mr. Frank J. Hogan in opposition thereto.

The argument on the merits in the above entitled causes was commenced by Mr. Charles E. Hughes, attorney for the appellant in Nos. 4870 and 4880, and was submitted on brief by Mr. Henry S. Manley, attorney for the appellant in No. 4871, and was continued by Mr. Louis G. Caldwell, attorney for the appellee.

383 In Court of Appeals of District of Columbia

Tuesday, December 4th, A. D. 1928

* * * * * * *

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION } No. 4870

AND

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION } No. 4880

Minute entry

The argument on the merits in the above-entitled causes was continued by Mr. Louis G. Caldwell, attorney for the appellee, and was concluded by Mr. Frank J. Hogan, attorney for the appellant.

On motion of Mr. Frank J. Hogan the parties are allowed twenty days to prepare an agreed statement of the case, with leave to file additional briefs on the merits; and the appellant is allowed ten days to file brief in opposition to the motions to strike, to vacate stay, and to dismiss.

384 In Court of Appeals of District of Columbia

No. 4870

GENERAL ELECTRIC COMPANY, APPLICANT-APPELLANT
v.
FEDERAL RADIO COMMISSION, APPELLEE

Supplemental motion to dismiss appeal of General Electric Company, appellant

Filed Feb. 21, 1929

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding, and renews its motion filed herein on November 27, 1928, to dismiss the said appeal. In addition to the grounds

assigned in said motion as set forth in the printed transcript of record herein at pages 364 to 366, the commission assigns the following grounds in support of said motion:

I

As is shown by the said transcript of record at pages 88 to 95, the said appeal involves a decision of the commission made on October 12, 1928, with reference to an application filed by appellant on January 14, 1928, seeking renewal of a license issued by the commission to appellant on November 1, 1927, which license, as extended from time to time, expired on November 11, 1928.

If the commission in its decision on said application had taken the most favorable action which appellant claims on this appeal the commission should have taken, the commission would have decided to issue, and would have issued, to appellant a license authorizing full-time operation on the frequency of 790 kilocycles with 50,000 watts power and covering a period beginning November 11, 1928, and expiring on January 31, 1929.

385 The period which would have been covered by such a license having expired on January 31, 1929, the question as to whether or not the commission should have issued such a license and the question as to whether the commission acted rightly and within its lawful powers in issuing the license which was actually issued (i. e., authorizing limited time operation on the frequency of 790 kilocycles with 50,000 watts power and covering the said period from November 11, 1928, to January 31, 1929) have become moot questions and no actual rights or interests of any party to this appeal are now involved.

II

Section 3 of an act continuing for one year the powers and authority of the Federal Radio Commission under the radio act of 1927, and for other purposes, approved March 28, 1928, provides that—

"Prior to January 1, 1930, the licensing authority shall grant no license or renewal of license under the radio act of 1927 for a broadcasting station for a period to exceed three months * * *."

By section 11 of the radio act of 1927 the commission is required in all cases to make a determination as to whether or not public interest, convenience, or necessity would be served by the granting of any application for a license or for a renewal of license filed pursuant to the act.

If the commission in its decision on appellant's said application for renewal filed January 14, 1928, had taken the most favorable action which appellant claims on this appeal the commission should have taken, and if, in issuing the license requested by appellant, had issued it to cover the maximum period permitted by law, the license thus issued would have expired on February 11, 1929—i. e., three months after November 11, 1928.

That period having expired there can not lawfully be issued a renewal license unless and until the commission has, upon a proper application for renewal, determined anew that public interest, convenience, or necessity would be served by the granting thereof.

386 The court may not make this determination for the commission, but, being confined to a review of the decision from which the appeal was taken, is faced with the dilemma of either reviewing a decision the alteration or revision of which will have no effect on the present rights of the parties or of dismissing the appeal because the case presents a moot question.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
General Counsel.

387 Notice to Frank J. Hogan, Esq., attorney for General Electric Company, appellant.

Please take notice that there has this day been filed the foregoing supplemental motion to dismiss the appeal of the General Electric Company in the above-entitled proceeding.

LOUIS G. CALDWELL,
Attorney for the Federal Radio Commission, Appellee.

WASHINGTON, D. C., *February 21, 1929.*

Acknowledgment of service

Receipt of a copy of the foregoing written notice and motion is acknowledged this 21st day of February, 1929.

FRANK J. HOGAN,
Attorney for General Electric Company, Appellant.
N. J. P.

388 [File indorsement omitted.]

389 In Court of Appeals of District of Columbia

No. 4880

GENERAL ELECTRIC COMPANY, APPLICANT-APPELLANT

v.

FEDERAL RADIO COMMISSION, APPELLEE

Supplemental motion to dismiss appeal of General Electric Company, appellant

Filed Feb. 21, 1929

Now comes the Federal Radio Commission, appellee in the above-entitled proceeding, and renews its motion filed herein on December 17, 1928, to dismiss the said appeal. In addition to the grounds assigned in said motion, referred to at page 373 of the printed trans-

cript of record herein and which is substantially the same as the motion printed at pages 364 to 366 of the printed transcript of record herein, the commission assigns the following grounds in support of said motion:

I

As is shown by the said transcript of record at pages 88 to 95, the said appeal involves a decision of the commission made on October 12, 1928, with reference to an application filed by appellant on January 14, 1928, seeking renewal of a license issued by the commission to appellant on November 1, 1927, which license, as extended from time to time, expired on November 11, 1928.

If the commission in its decision on said application had taken the most favorable action which appellant claims on this appeal the commission should have taken, the commission would have decided to issue, and would have issued, to appellant a license authorizing full-time operation on the frequency of 790 kilocycles with 50,000 watts power and covering a period beginning November 11, 1928, and expiring on January 31, 1929.

390 The period which would have been covered by such a license having expired on January 31, 1929, the question as to whether or not the commission should have issued such a license and the question as to whether the commission acted rightly and within its lawful powers in issuing the license which was actually issued (i. e., authorizing limited time operation on the frequency of 790 kilocycles with 50,000 watts power and covering the said period from November 11, 1928, to January 31, 1929) have become moot questions and no actual rights or interests of any party to this appeal are now involved.

II

Section 5 of an act continuing for one year the powers and authority of the Federal Radio Commission under the radio act of 1927, and for other purposes, approved March 28, 1928, provides that—

"Prior to January 1, 1930, the licensing authority shall grant no license or renewal of license under the radio act of 1927 for a broadcasting station for a period to exceed three months."

By section 11 of the radio act of 1927 the commission is required in all cases to make a determination as to whether or not public interest, convenience, or necessity would be served by the granting of any application for a license or for a renewal of license filed pursuant to the act.

If the commission in its decision on appellant's said application for renewal filed January 14, 1928, had taken the most favorable action which appellant claims on this appeal the commission should have taken, and if, in issuing the license requested by appellant, had issued it to cover the maximum period permitted by law, the license

thus issued would have expired on February 11, 1929—i. e., three months after November 11, 1928.

That period having expired there can not lawfully be issued a renewal license unless and until the commission has, upon a proper application for renewal, determined anew that public interest, convenience, or necessity would be served by the granting thereof.

391 The court may not make this determination for the commission, but, being confined to a review of the decision from which the appeal was taken, is faced with the dilemma of either reviewing a decision the alteration or revision of which will have no effect on the present rights of the parties or of dismissing the appeal because the case presents a moot question.

FEDERAL RADIO COMMISSION,
By LOUIS G. CALDWELL,
General Counsel.

392 Notice to Frank J. Hogan, Esq., attorney for General Electric Company, appellant

Please take notice that there has this day been filed the foregoing supplemental motion to dismiss the appeal of the General Electric Company in the above-entitled proceeding.

LOUIS G. CALDWELL,
Attorney for the Federal Radio Commission, Appellee.

WASHINGTON, D. C., *February 21, 1929.*

Acknowledgment of service

Receipt of a copy of the foregoing written notice and motion is acknowledged this 21st day of February, 1929.

FRANK J. HOGAN,
Attorney for General Electric Company, Appellant.
N. J. P.

393 [File indorsement omitted.]

394 In Court of Appeals of District of Columbia

THE GENERAL ELECTRIC COMPANY, appellant vs. FEDERAL RADIO COMMISSION	No. 4870
THE PEOPLE OF THE STATE OF NEW York, appellants vs. FEDERAL RADIO COMMISSION	No. 4871
THE GENERAL ELECTRIC COMPANY, appellant vs. FEDERAL RADIO COMMISSION	No. 4880

Opinion

Filed Feb. 25, 1929

Appeals from a decision of the Federal Radio Commission

Before MARTIN, Chief Justice, and ROBB and VAN ORSDEL, Associate Justices.

Mr. Chief Justice MARTIN delivered the opinion of the court.

These appeals are brought under section 16 of the radio act of 1927 (44 Stat. 1169) for a review of a decision of the Federal Radio Commission whereby the commission refused the application of appellant for a renewal of its broadcasting license dated November 1, 1927, for the operation of station WGY located at Schenectady, New York, with permission to use 50 kw. power at a frequency of 790 kilocycles and without limitation as to time of operation.

The novelty of this subject justifies a preliminary reference to the controlling statutes, and also a statement of certain elementary facts drawn in part from the record and in part from common knowledge and public history.

395 The electric impulses which carry sounds when broadcast proceed through the "ether" in waves which move at a distance of 300,000,000 meters per second. The length of the waves may be measured by scientific instruments; likewise, the number of waves produced each second; the latter measurement is called the "frequency" of a station, the former its "wave length." A vast demand is made for the use of the ether for various purposes, of which broadcasting is only one. In the present state of the art the broadcasting band is limited to frequencies extending from 550 to 1,500 kilocycles per second, or, if stated in wave lengths, from 545 to 200 meters. It is conceded that in order to avoid interference between stations when broadcasting at the same time there should be a difference of 10 kilocycles between the frequencies respectively employed by them, otherwise they will interfere with one another and can not be clearly distinguished by the receiver. It follows that there are but 96 practicable frequencies or so-called wave channels employed in broadcasting as at present carried on. Six of these channels have been set aside for the exclusive use of stations in Canada, with the result that only 90 remain for use in the United States. It is agreed that certain broadcasting stations, employing high power, should be recognized as national and be given the exclusive use of appropriate frequency bands in order to avoid interference with one another and with smaller stations; while certain other stations, recognized as regional or local, operate with less power, and for this reason, and because of relative geographical locations, may operate with the same frequency without serious interference with one another. It is well known that the time of day or night which may be allotted to a broadcasting station is a factor of importance in its operation. Owing to the fact that the sun's rays ab-

sorb the broadcasting waves, there is less interference among stations in the daytime than at night. The greater audiences, however, listen in to radio programs between sundown and midnight, and from September until March, and accordingly that period is the most advantageous for operation.

On August 13, 1912, Congress passed "An act to regulate
396 radio communication" (37 Stat. 320), which was the first general law upon the subject, and was in force from its date until the passage of the act of 1927. The art of broadcasting, however, as now understood had not then been developed, as appears from the following extract from the report of the Senate Committee upon the bill:

"The term 'radio communication' instead of 'radiotelegraphy' is used throughout the bill so that its provisions will cover the possibility of the commercial development of radiotelephony. (Sec. 6, p. 14.) Experiments have been made here and abroad for some years in carrying the human voice on Hertzian waves, but with only limited and occasional results. Radiotelephony involves the application of the same principles as are involved in inventions to enable apparatus to select and record accurately one message on a given wave length out of a mass of messages on various lengths. When this latter result has been attained—an unfulfilled promise of some years' standing—radiotelephony will quickly follow. The bill is framed to be adjusted to that improvement when it comes, but in the meantime it deals with the art as it exists to-day."

Senate Report 698, Sixty-second Congress, second session, pp. 5, 7.

The "unfulfilled promise" thus referred to was finally fulfilled, and the first broadcasting station in the United States was constructed in the year 1920. Other similar stations rapidly followed, and owing to the lack of effective regulation under the act of 1912 a chaotic condition known as the "breakdown of the law" ensued, and the usefulness of the art was for the time being seriously impaired.

In order to correct this condition, Congress enacted the act of February 23, 1927, entitled "An act for the regulation of radio communication, and for other purposes" (44 Stat. 1162). This act, which is yet in force, forbids all radio broadcasting in this country except under and in accordance with a license granted under the provisions of the act. For the purposes of the act the United States is divided into five zones, the first zone including the State of New York and
certain other Northeastern States, while the fifth zone includes
397 the State of California and certain other Western States. The act establishes the Federal Radio Commission with power to classify radio stations, to prescribe the nature of the service or class of stations, to assign bands of frequencies or wave lengths to the various stations or classes of stations, and determine the power which each station shall use and the time during which it shall operate, to determine the location of classes of stations or individual stations, and to make such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry

out the purposes of the act, provided, however, that changes in the wave lengths, authorized power, in the character of emitted signals, or in the times of operation of any station, shall not be made without the consent of the station licensee unless, in the judgment of the commission, such changes will promote public convenience or interest or will serve public necessity or more fully comply with the provisions of the act. The act provides that the licensing authority, if public convenience, interest, or necessity will be served thereby, subject to the limitations of the act, shall grant to any applicant therefor a station license provided for by the act; and that in considering applications for licenses, when and in so far as there is a demand for the same, the licensing authority shall make such a distribution of licenses, bands of frequency or wave lengths, periods of time for operation, and of power among the different States and communities as to give fair, efficient, and equitable radio service to each of the same. The act provides that no license for the operation of a broadcasting station shall be for a longer term than three years, and upon the expiration of any license, upon application therefor, a renewal of such license may be granted from time to time for a term of not to exceed three years; and no renewal of an existing station license shall be granted more than thirty days prior to the expiration of the original license. The act also provides that if upon examination of any application for a station license or for the renewal or modification of such a license the licensing authority shall determine that public interest,
convenience, or necessity would be served by the granting
398 thereof, it shall authorize the issuance, renewal, or modification
thereof in accordance with its finding, but if the licensing authority upon examination of any such application does not reach such decision with respect thereto, it shall notify the applicant thereof, and shall fix and give notice of a time and place for hearing thereon, and shall afford such applicant an opportunity to be heard under such rules and regulations as it may prescribe. The act also provides that any applicant for the renewal of an existing station license whose application is refused by the licensing authority (in this case the Federal Radio Commission) shall have the right to appeal from such decision to this court, by filing with the court within twenty days after the decision complained of is effective, notice in writing of the appeal and of the reasons therefor; that the licensing authority shall be notified of the appeal by service upon it, prior to the filing thereof, of a certified copy of the appeal and of the reasons therefor; and within twenty days after the filing of the appeal the licensing authority shall file with the court the papers and evidence presented to it upon the original application for a permit or license, and a copy of its decision thereon and a full statement in writing of the facts and the grounds for the decision as found and given by it; that the court may order the taking of additional evidence in such manner as it may deem proper; that the court shall hear, review, and

determine the appeal upon the record and evidence, "and may alter or revise the decision appealed from and enter such judgment as to it may seem just."

By force of an amending act, known as the Davis Act, passed March 28, 1928 (45 Stat. 373), it is provided that the people of all the zones established by the act of 1927 "are entitled to equality of radio broadcasting service, both of transmission and of reception, and in order to provide said equality the licensing authority shall as nearly as possible make and maintain an equal allocation of broadcasting licenses, of bands of frequency or wave lengths, of periods of time for operation, and of station power to each of said zones when and in so far as there are applications therefor; and shall make a fair and equitable allocation of licenses, wave lengths, time for operation, and station power to each of
399 the States, the District of Columbia, the Territories, and possessions of the United States within each zone, according to population." And that "the licensing authority shall carry into effect the equality of broadcasting service hereinbefore directed, whenever necessary or proper, by granting or refusing licenses or renewals of licenses, by changing periods of time for operation, and by increasing or decreasing station power, when applications are made for licenses or renewals of licenses."

The General Electric Company was first licensed to operate station WGY on February 4, 1922, under the act of 1912. The license was for three months; the power 1,500 watts; the frequency 832.8 kilocycles, corresponding to a wave length of 360 meters. Thereafter during successive periods of three months each the company applied for and was granted renewals of its license, each for the period of three months. By the renewal of May 21, 1923, it was assigned a frequency of 790 kilocycles, which it has had ever since, although at times the same frequency has been concurrently used by other licensed stations. The station power was gradually advanced by successive renewals from 1,500 watts to 50,000 watts, with greater power allowed for experimental purposes. On June 1, 1927, the first license issued to the company under the act of 1927 was received by it. This license was for the period ending July 31, 1927, and granted a frequency of 790 kilocycles, the time to be shared with station WHAZ. On September 15, 1927, a renewal license was issued to the company for the term ending October 14, 1927, frequency 790 kilocycles, power 50,000 watts, time of operation to be shared with station WHAZ. On November 1, 1927, a similar renewal license was granted the company for the term ending December 31, 1927, with the same frequency and power but with unlimited time of operation. The licenses issued under the act of 1927 contained the following term: "This license is issued under and in accordance with the radio act of 1927, and all of the terms and conditions thereof are made a part hereof as though specifically set out in full herein." By

certain general orders of the commission the license dated November 1, 1927, was extended until November 11, 1928, being a period slightly in excess of one year. On January 14, 1928, the company filed
400 an application for a renewal of this license. On October 12, 1928, the commission authorized a revision of the allocation of all broadcasting stations, to take effect on November 11, 1928. By the terms of this revision WGY was granted a frequency of 790 kilocycles and power of 50,000 watts, as before, subject to the limitation that the station was to share this frequency with station KGO, Oakland, California, and was not to operate after sunset at the latter station. This would require WGY to cease operating at the following average times throughout the year, to wit: During the month of January, at 8.17 o'clock; February, 8.48; March, 9.18; April, 9.47; May, 10.17; June, 10.32; July, 10.28; August, 10; September, 9.16; October, 8.32; November, 8.01; December, 7.56. Station KGO, Oakland, California, also belongs to the General Electric Company and operates with a power of 10,000 watts. The commission's order accordingly granted a cleared or exclusive channel of 790 kilocycles for the use of the two stations, granting KGO full time of operation and WGY limited time at night, as aforesaid. Appeals 4870 and 4871 herein were filed on November 9, 1928. Appeal 4880 was filed on November 30, 1928. They present the same issue, and while the earlier appeals may have been premature the last appeal conforms to the rules and is regular.

The appellant rightly contends that the refusal of the commission to renew its license except as modified with respect to the time of operation amounted to a refusal of a renewal within the sense of the act of 1927; and appellant contests the commission's action upon a claim (1) that it wrongfully deprives appellant of its property rights by preventing the full-time operation of station WGY; and (2) that in fact the public convenience, interest, and necessity will be served by renewing appellant's former license with unrestricted time of operation and will not be served by the modification aforesaid.

In respect to appellant's first contention, we may say that under the commerce clause of the Constitution Congress has the power to provide for the reasonable regulation of the use and operation of radio stations in this country and to establish agencies such as the Federal Radio Commission to give effect to that authority.
401 Without such national regulation of radio a condition of chaos in the air would follow, and this peculiar public utility which possesses such incalculable value for the social, economical, and political welfare of the people and for the service of the Government would become practically useless. (Davis, Law of Radio, p. 71; Zollman, Law of the Air, pp. 102, 103.) Reference is made in appellee's brief to a decision by Judge Wilkerson in White v. Johnson, United States attorney, U. S. District Court, Chicago, not yet reported, wherein it is said: "The construction of plaintiff's plant and its operation under the license obtained prior to the act of February

23, 1927, did not create property rights which may be asserted against the regulatory power of the United States if that power is properly restricted." The terms and conditions of the various licenses received and enjoyed by appellant as herein recited also tend to confirm the view that if the time limitation imposed by the commission upon WGY be reasonable and such as to serve the public convenience, interest, or necessity, the order should be sustained; otherwise it should be overruled. Upon this point, however, we feel that the contention of the appellant should be sustained. It appears that station WGY represents a large investment of capital said to be $1,500,000, adventured in part during the pioneer stages of broadcasting, and that the station has been one of the most important development stations in the country; that through its enterprise important and valuable apparatus has been developed which has greatly advanced the art of broadcasting; that it has been one of three stations recognized in this country as development broadcasting stations; and that at present it carries on great experimental work of this character in the public interest. It appears that within a hundred miles of the station there is a very larg[e] population, both urban and rural, estimated to number more than 2,000,000 persons residing in the States of New York, Massachusetts, Vermont, and New Hampshire, who in large part are dependent upon this station for reliable and regular broadcasting service; and that if the station should be silenced during the early hours of the evening, as determined by the commission, the general public within the territory would be seriously prejudiced. In view of the service to the art hitherto rendered by WGY and still continued by it, with the resulting advantage to the public, and in view also of the "public convenience, interest, and necessity" of so great a constituency for full-time operation of the station, it appears that the restriction complained of is not reasonable and should not be enforced.

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The considerations inducing the action of the commission are fully set out in the record. When the commission commenced its official services under the act of 1927, and undertook to bring order out of the chaos then prevailing in broadcasting, it decided that the public convenience, interest, and necessity required that not more than 40 of the 90 available broadcasting frequency channels should be maintained as cleared channels for the exclusive use of the high-powered national broadcasting stations, and that the remaining 50 channels should be reserved for regional and local broadcasting. Accordingly, under the Davis amendment of March 28, 1928, the commission divided the 40 cleared channels equally among the five broadcasting zones, allocating 8 to each zone. In making this allocation the commission assigned the frequency of 790 kilocycles to station KGO, Oakland, California, as a cleared channel for use by it without time limitation, and assigned the same frequency to station WGY, but forbidding its use by the latter in the evening hours after sunset at station KGO. It is contended in support of this allocation that it is an essential part of a general system for the regulation of broad-

casting throughout the country; that the system was adopted after thorough investigation of the situation with the aid of competent radio engineers; and that the granting of a frequency of 790 kilocycles to WGY without time limitation would destroy the system as a whole, thereby producing great confusion. It is argued also that such an order would have the result of giving the first zone 9 cleared full-time channels instead of 8, which is the number allocated to each of the other zones.

We have but little information concerning station KGO, except that it operates on a power of 10,000 watts, and that it also is owned by the General Electric Company. It must be assumed that
403 WGY operating in the evening with a power of 50,000 watts would at certain distances interfere with the broadcasting of KGO, with its smaller power. It does not appear, however, that this interference would compare in point of public inconvenience with that resulting from the silencing of WGY after sunset at Oakland, nor that full-time operation in the evening by WGY with 790 kilocycles would seriously impair the general scheme of allocations otherwise adopted by the commission. We are convinced that the public interest would be enhanced by granting full time to the latter station.

It is the judgment of this court, therefore, that the appellant, the General Electric Company, was on November 11, 1928, and is now, entitled to receive from the Federal Radio Commission a renewal of its license to operate station WGY upon the same terms as those contained in the license dated November 1, 1928, to wit, upon 790 kilocycles with power of 50 kw., and without time limit of operation; and this cause is remanded to the Federal Radio Commission to carry this judgment into effect. Costs assessed against appellee.

[File indorsement omitted.]

404 In Court of Appeals of District of Columbia

* * * * * * *

GENERAL ELECTRIC COMPANY, APPELLANT vs. FEDERAL RADIO COMMISSION	No. 4870, January term, 1929
THE PEOPLE OF THE STATE OF NEW YORK, appellants vs. FEDERAL RADIO COMMISSION	No. 4871, January term, 1929
AND	
GENERAL ELECTRIC COMPANY, APPELLANT vs. FEDERAL RADIO COMMISSION	No. 4880, January term, 1929

Judgment

Appeals from the Federal Radio Commission. These causes came on to be heard on the transcript of the record from the Federal Radio

Commission and were argued by counsel. On consideration whereof, it is now here ordered and adjudged by this court that the appellant, the General Electric Company, was, on November 11, 1928, and is now, entitled to receive from the Federal Radio Commission a renewal of its license to operate station WGY upon the same terms as those contained in the license dated November 1, 1928, to wit, upon 790 kilocycles with power of 50 kw., and without time limit for operation; and that this cause be and the same is hereby remanded to the Federal Radio Commission to carry this judgment into effect, costs to be assessed against the appellee.

Per Mr. CHIEF JUSTICE MARTIN.

FEBRUARY 25, 1929.

405 In Court of Appeals of District of Columbia

Memorandum: Motion for rehearing and stay of mandate

Filed March 5, 1929

406 In Court of Appeals of District of Columbia

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GENERAL ELECTRIC CO., APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4870

THE PEOPLE OF THE STATE OF NEW YORK, appellants
vs.
FEDERAL RADIO COMMISSION
No. 4871

AND

GENERAL ELECTRIC CO., APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4880

Order denying rehearing

Mar. 9, 1929

On consideration of the petition for rehearing in the above-entitled causes, it is ordered by the court that said petition be, and the same is hereby, denied.

407 In Court of Appeals of District of Columbia

GENERAL ELECTRIC CO., APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4870

THE PEOPLE OF THE STATE OF NEW YORK, appellants
vs.
FEDERAL RADIO COMMISSION
No. 4871

AND

GENERAL ELECTRIC CO., APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4880

Order denying stay of mandate

Mar. 9, 1929

On consideration of the motion to stay the mandate in the above-entitled causes pending application for certiorari to the Supreme Court of the United States, it is ordered by the court that said motion be, and the same is hereby, denied on authority of Keller v. Potomac Electric Power Co., 261 U. S. 428.

408 In Court of Appeals of District of Columbia

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4870

THE PEOPLE OF THE STATE OF NEW YORK, appellants
vs.
FEDERAL RADIO COMMISSION
No. 4871

GENERAL ELECTRIC COMPANY, APPELLANT
vs.
FEDERAL RADIO COMMISSION
No. 4880

Præcipe for transcript of record filed

May 4, 1929

The clerk will please prepare a transcript on application for certiorari to the Supreme Court of the United States in the above-entitled cause, including therein the following:

1. Printed record.
2. Motion to dismiss appeal in No. 4880.

3. Stay order of November 9, 1928.
4. Minute entry of argument.
5. Supplemental motion to dismiss appeal as presenting moot question.
6. Opinion.
7. Order.
8. Docket entry showing motion for rehearing and stay of mandate was filed.
9. Minute entry of order denying same.
10. This designation.
11. Clerk's certificate.

(s.) BETHUEL M. WEBSTER, JR.,
General Counsel for Federal Radio Commission, Appellee.

409 [File indorsement omitted.]

410 [Clerk's certificate to foregoing transcript omitted in printing.]

411 Supreme Court of the United States

Order allowing certiorari

Filed October 14, 1929

The petition herein for a writ of certiorari to the Court of Appeals of the District of Columbia is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

(Indorsement on cover:) File No. 34,253. District of Columbia Court of Appeals. Term No. 122. Federal Radio Commission, petitioner, vs. General Electric Company and People of the State of New York. Petition for writ of certiorari and exhibit thereto. Filed June 1, 1929. File No. 34,253.

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